NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

EX 3-3260
Ext. 7827

NASA RELEASE NO. 59-108
FOR RELEASE: P.M.'s Wed.
April 1, 1959

MEMBERS OF TWO SPACE SCIENCES WORKING GROUPS NAMED

The first two space sciences working groups have been formed and 13 government university and industrial scientists have accepted memberships on them, the National Aeronautics and Space Administration announced today.

Organization of a number of such NASA groups was reported March 20 when it was noted that the purpose of the working units would be to follow through on experiments in correlating research projects in future satellite and space probe payloads. The program is under the direction of Dr. Homer E. Newell, Jr., NASA Assistant Director for Space Sciences.

Working groups whose initial memberships have been completed are:

Orbiting Astronomical Observatories, to be headed by Dr. Nancy Roman of the NASA Office of Space Sciences.

Satellite Ionospheric Beacons, with J. C. Seddon of the NASA Space Projects Center, Beltsville, Maryland, as chairman.

Dr. Abe Silverstein, Director of NASA Space Flight Development, said working groups on Interplanetary Probes and Lunar Explorations also are in the process of formation. As specific needs arise, additional working groups will be established.

Working with Dr. Roman in the astronomical observations group will be Dr. J. E. Kupperian, Beltsville; Dr. A. Code, University of Wisconsin; Dr. L. Goldberg, University of Michigan; Dr. A. B. Meinel, Association of Universities for Research in Astronomy, Inc.;

J. E. Milligan, Beltsville; Dr. L. Spitzer, Princeton University, and Dr. F. L. Whipple, Smithsonian Astrophysical Observatory.

With Seddon on the satellite ionospheric beacons committee are Dr. C. G. Little, National Bureau of Standards Central Radio Propagation Laboratory, Boulder, Colorado; Dr. W. J. Ross, Pennsylvania State University; Dr. G. W. Swenson, University of Illinois, and Dr. O. G. Villard, Stanford University.

Dr. Hugh L. Dryden, Deputy NASA Administrator, explained that the working groups will be involved in relatively long range projects. Dr. Roman's group has as its purpose exploration of X-ray ultra-violet and infrared regions of the electromagnetic spectrum of the sun, stars and nebulae.

To accomplish this, astronomical telescopes will be put into orbit 500 miles above the earth on a vehicle-stabilized platform.

Before such experiments can be conducted, it will be necessary to define the intensity range of the Great Radiation Belt, and to determine the characteristics and wavelengths of solar and stellar regions which observatories will explore. This information is expected to come from additional satellites, deep space probes and sounding rockets. Scientists must also develop optical materials most suited for ultra-violet and X-ray studies in the ionosphere.

Objective of the satellite ionospheric beacons working group is to study distribution of electrically charged particles and electron concentration in the ionosphere, Dr. Dryden said.

As presently envisioned, the group will work on a program to put multi-frequency radio beacons into a 200 to 500 mile orbit. Signals received by ground stations will furnish the ionospheric propagation effects, including polarization, refraction, absorption and scintillation.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

EX 3-3260
Ext. 7827

NASA Release No. 59-110
FOR IMMEDIATE RELEASE
April 2, 1959

DR. CLARK T. RANDT NAMED SCIENTIST FOR NASA'S SPACE MEDICAL RESEARCH

Dr. Clark T. Randt has been appointed Scientist for Space Medical Research in the Office of Research Grants and Contracts at Headquarters, National Aeronautics and Space Administration, Washington, D. C. Previously he was Associate Professor of Neurology in the Department of Medicine, Western Reserve University, and Director of the Division of Neurology, University Hospitals, Cleveland, Ohio.

Dr. Randt will plan a long-range basic research program in the life sciences which affect the national space program. It is expected that a large portion of this work will eventually be carried on by medical schools and other research organizations throughout the country under U. S. Government grants and contracts. In addition, Dr. Randt will assist the NASA in human factors studies related to manned space flight.

Born in Lakewood, Ohio, in 1917, Dr. Randt earned his Bachelor of Arts degree from Colgate University in 1940 and his medical degree from Western Reserve University in 1943.

He interned in the University Hospitals of Cleveland for one year, and then became an Assistant Resident. From 1944 to 1945 he was a Demonstrator in Medicine at Western Reserve.

After two years as an officer in the U. S. Army Medical Corps, Dr. Randt spent several months as Assistant Resident and Teaching Fellow in Medicine at Western Reserve.

From 1947 to 1950, he was Assistant Resident and later Chief Resident in Neurology at the Neurological Institute of New York, Columbia Presbyterian Medical Center, and from 1949 to 1950 he was Assistant in Neurology at Columbia University. He was certified by the American Board of Psychiatry and Neurology in neurology in June 1950.

In 1950 Dr. Randt returned to Western Reserve as Senior Instructor in Neurology in the Department of Medicine, and one year later was made Assistant Professor. He has been an Associate Professor of Neurology since 1952 and Director of the Division of Neurology since 1956.

Dr. Randt is the author of numerous medical articles. He is a Fellow of the American Academy of Neurology, and a member of the Association for Research in Nervous and Mental Disease, the Academy of Medicine of Cleveland, the Ohio State Medical Association, American Medical Association, Sigma Xi, and the American Association for the Advancement of Science.

Dr. and Mrs. Randt (the former Mary Louise Mitchell) and their three sons have been making their home at 21300 Claythorne Road, Shaker Heights, Ohio.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D.C.

EX 3-3260
Ext. 7827

NASA RELEASE NO. 59-111
FOR RELEASE: AM's Tues.
April 7, 1959

SEVEN TO ENTER MERCURY TRAINING PROGRAM

Seven volunteers will report to the Space Flight Activity at the Langley Research Center, Hampton, Virginia, in the early future for Project Mercury orbital flight training, the National Aeronautics and Space Administration said today. This number is less than that anticipated earlier in order to assure more complete participation by each selectee in all phases of the Mercury development.

(Note to editors: The final selectees will be named at a press conference at 2 P.M. Thursday at the NASA Auditorium, located at 1520 H Street, N. W. This information is for planning purposes and not for publication.)

NASA emphasized that the great percentage of those who have been through the selective screening meet the demanding Mercury requirements, which were based on psychological and physiological standards developed for special mission assignments. The seven volunteers will provide a variety of technical experience for the project in addition to training as astronauts.

Initial plans called for 12 men to undergo astronaut training. During the selection process, it became apparent that the Mercury team will consist of pilots superbly adapted to the demands of the manned satellite program. All volunteers were highly motivated, and a reevaluation of Mercury requirements indicated a smaller number was desireable so that each will have an important role in:

1. Engineering and scientific development of the space vehicle.
2. Sub-orbital buildup missions.
3. Manned satellite flight.

Because many of the unusual conditions expected in space flight are similar to those experienced by military test pilots, the NASA went to this field to seek volunteers for the astronaut program. General requirements were possession of a bachelor's degree or equivalent in engineering or the physical sciences; graduation from a military test pilot school; 1,500 hours of flying time; under age 40, and five feet, 11 inches in height or less. The educational requirement was set because of the variety of scientific and technical problems that will confront the astronauts throughout the program.

A preliminary screening of records indicated that more than 100 active graduates of military test pilot schools would qualify under these requirements. It was found unnecessary to contact all of them, because of the first 69 called to Washington to hear the Mercury project outlined, 80 per cent volunteered.

All were of such high caliber that selection was difficult. Through individual interviews and suitability discussions to determine motivation, experience and technical background, a group of 32 was selected to proceed further in the program. The seven Mercury astronauts will come from this group of 32.

From Washington, the selection schedule took the pilots first to Lovelace Clinic in Albuquerque, New Mexico, and then to the Wright Air Development Aeromedical Laboratories, Wright-Patterson Air Force Base, Ohio. At Lovelace, candidates were given exacting physical examinations. At WADC, the Air Force, with the assistance of Army and Navy specialists, assessed candidates in the psychological and stress tolerance areas.

The selection process ended at the Langley Research Center Space Flight Activity, where final evaluation was undertaken by a group representing both medical and scientific professions.

Robert R. Gilruth, director of the NASA Space Task Group, also is director of Project Mercury. Headquarters for the group, and the future home of the astronauts, is at Langley. Astronauts will train at a number of locations throughout the country, including the Wright Air Development Center; Naval Air Development Center, Johnsville, Pennsylvania; Atlantic Missile Range, Cape Canaveral Florida, and at biomedical centers throughout the country.

- END -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

Merc.

SPACE TASK GROUP FACT SHEET

I. BACKGROUND

The Space Task Group is a unit of the National Aeronautics and Space Administration located at the NASA's Langley Research Center, Hampton, Virginia. The group came into existence in the Fall of 1958 with specific responsibility for putting a manned satellite into orbit with subsequent safe recovery. During the year preceding formation of the task group, several members of the Langley staff had conducted experimental and theoretical studies into problems of manned space flight.

Dr. T. Keith Glennan, NASA Administrator, ordered that the task group be organized, and the Langley Center released a number of scientists to the group. These men formed its nucleus. The Space Task Group is a component which reports directly to NASA Space Flight Development in Washington.

II. ORGANIZATION

The group is headed by a Project Director, Robert R. Gilruth, who was an Assistant Director of the Langley Research Center before he was appointed to his present post. Assistant Project Director is Charles J. Donlan. Paul E. Purser is Special Assistant to the Director.

Chief of the Operations Division is Charles W. Mathews. Maxime A. Faget heads the Flight Systems Division. Charles H. Zimmerman is Chief of the Engineering and Contract Administration Division.

(Note: Part V of this pamphlet contains biographies of the above named scientists.)

Scope of the Operations Division includes launching, recovery, ground support and developmental testing.

The Flight Systems Division conducts work on a parallel with systems application, and its responsibility involves heat shielding, structures, navigation, rocket boosters, escape, life support and systems integration.

Area of the work within the Engineering and Contract Administration Division is design engineering, specifications, contract negotiation and contract monitoring.

Continuous informational liaison is maintained with the Defense Department, through the Advanced Research Projects Agency, and with the Lovelace Aeromedical Committee.

Also within the Space Task Group is a staff of human-factors consultants, all of whom have extensive experience in the selection and training of men for special missions in fields such as research air crews and nuclear-propelled submarine crews.

III. FACILITIES AVAILABLE TO IMPLEMENT PROGRAM

The Space Task Group is calling on facilities of the NASA, the Armed Services, universities and industry in the Project Mercury program.

Much basic and developmental research is being conducted at NASA centers in aerodynamics, structures, guidance, stability and control and flight support.

Human factors facilities in such fields as weightlessness and high acceleration and deceleration are being furnished by the Department of Defense.

Industrial resources will fabricate the capsule and equip it for its flight. The McDonnell Aircraft Company of St. Louis, Missouri, was selected prime contractor for the space capsule in January 1959.

IV. FUTURE PROJECTS

Project Mercury is a basic stepping stone in development of space exploration techniques. Because the project is without precedent, no time schedule can be given for accomplishing the required developmental programs. Logically, man's initial orbital flight will be followed by research to refine performance, much the same as is done in aircraft research.

Once it has been conclusively demonstrated that man can exist in the environment of outer space, it is likely that the program will extend to sending two men into orbit, then a team. Scientists foresee construction of an orbiting space laboratory and development of a method of ferrying personnel and equipment to this station.

V. BIOGRAPHIES (To Follow)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

EX 3-3260
Ext. 6325

NASA Release No. 59-112
For Release: Friday PMs
April 3, 1959

NASA AWARDS LIQUID HYDROGEN CONTRACT

NASA today awarded a five-year contract for West Coast purchases of liquid hydrogen -- a high-energy rocket fuel ingredient -- to Linde Company, a division of Union Carbide Corporation.

The plant, to be located in Torrance, California, near Los Angeles, is to fill NASA's expanding needs for liquid hydrogen in work on several rocket projects in the Southwest.

The plant, which will be an expansion of existing Linde facilities in Torrance, is to be in production by April, 1960. Linde is to underwrite the cost of plant expansion.

Among projects requiring liquid hydrogen is Centaur -- consisting of an Atlas, a second stage liquid hydrogen engine and a new third stage.

Use of liquid hydrogen -- as opposed to existing liquid fuels -- will make the second stage considerably more powerful. Centaur should be capable of putting a five-ton payload in a low orbit around the earth or sending a 2,000-pound payload on deep space missions.

Centaur, presently an Air Force project under contract to Convair, a division of General Dynamics, will be transferred to NASA July 1, 1959.

Liquid hydrogen is to be used also in certain staging of the NASA-AEC classified Project Rover, a rocket which will have a nuclear propelled stage. Linde will ship the fuel by tank truck to Nevada test sites for Rover development.

On a sample year's supply of liquid hydrogen, Linde bid $1.3 million -- more than $1 million less than the next lowest bidder among four competing companies. The contract calls for no guaranteed purchase amount.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

NASA RELEASE NO. 59-113
EX 3-3260
Ext. 6327

FOR RELEASE:
At Press Conference
2 P.M. Thursday
April 9, 1959

MERCURY ASTRONAUT SELECTION FACT SHEET

BACKGROUND

Many of the conditions expected in orbital space flight are similar to those experienced by military test pilots. NASA, therefore, went to this field to seek volunteers for the Mercury astronaut training program. More than 100 military test pilots meet the general qualifications; of these, 69 were interviewed in Washington, D.C., and 80 per cent volunteered to proceed. Personal consultations and interviews followed, and the list of candidates was narrowed to 32.

In this initial phase, and in the following selection steps, evaluation was extremely difficult because of the high caliber and motivation of the candidates. During the course of the selection program it was determined that seven is the optimum number of Mercury astronauts so that each can have full participation in all phases of the Mercury development.

PHYSICAL FITNESS

Immediately following their Washington interviews the candidates were assigned to groups, five of six men each and one of two. One group at a time reported to the Lovelace Clinic in Albuquerque, New Mexico, for an exhaustive series of examinations. The other men returned to their home stations to await the call for their groups. The first contingent entered Lovelace February 7, and the others on succeeding Saturdays. Each candidate spent seven and one-half days and three evenings at the Lovelace facility.

General physical requirements were established by the NASA Life Sciences Committee; since all those examined are active test pilots it was not anticipated that any would be disqualified as physically unfit. Rather, degrees of physical soundness were obtained and evaluation was dependent upon a comparison of each man to his fellow candidates.

To establish a comparative yardstick, the Lovelace program began with a complete aviation and medical history and extended to these areas:

Hematology and pathology (blood and study of tissues)
Roentgenology (X-ray consultations)
Ophthamology (eyes)
Otolayngology (ears, nose and throat)
Cardiology (heart and circulation)
Neurology and Myology (nerves and muscles)
General internal medicine
Related laboratory studies

Special consulations were provided if indicated by the candidate's medical history or any of the general examinations. These examinations were given under normal clinical procedures, while the subject was in a resting condition. To assess the candidate's abilities under load, Lovelace physicians developed a series of dynamic tests which were used for the first time in the Project Mercury selection process.

Capacity under load, or body efficiency, was determined from a correlation of the subject's physical competence with his pulmonary function, total body radiation count, specific gravity of the body, blood volume, water volume, lean body mass and detection of tiny congenital openings between the chambers of the heart.

Results of the static and dynamic tests were recorded on special computing cards developed by the Lovelace Clinic for the astronaut program. These cards are mark-sensed so they may be read directly by the examining physician and contain the candidate's complete aviation and medical histories and examination findings.

PSYCHOLOGICAL AND STRESS EVALUATION

The next step in the selection process was a minute determination of the candidate's psychological makeup and an estimate of his ability to cope with stresses expected in space flight.

Basis for this part of the selection took into consideration previously developed studies made in anticipation of the need for a program to select and precondition pilots for extreme high altitude flights. The program was tailored to meet the specific requirements foreseen for orbital flight.

The Air Force, with the assistance of Army and Navy specialists, conducted psychological and stress measurements at the Wright Air Development Center Aeromedical Laboratories, Wright-Patterson Air Force Base, Dayton, Ohio. The examinations were in these general areas:

Personality evaluation
Behavioral sciences
Stress and fatigue
Accelerative forces
Equilibrium and vibration
High energy noise
Low barometric pressure
Thermal stress
Anthropology

Testing at WADC was conducted with candidates in six groups of five men each and one group of two. The first group entered February 15; each man was evaluated six days and three evenings.

A complex appraisal of both clinical and statistical test results went into the WADC evaluation of candidates. As in the case of the Lovelace examinations, results were not a matter of passing or failing, but instead were measures of how one candidate compared with all others.

Because manned satellite flight is without precedent, Mercury astronauts will be pioneers not only in space flight but also in the development of a program which will determine qualities best suited for such special missions.

FINAL SELECTION

Data from the Lovelace and WADC examinations were compiled and forwarded to the NASA Space Flight Activity, Langley Field, near Hampton, Virginia, for the fourth and final step in the selection process. At Langley, a group representing both the medical and technical fields evaluated the previous examinations. The seven ultimately selected were chosen as a result of physical, psychological and stress tolerence abilities and because of the particular scientific disciple, or specialty, each represents.

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APPENDIX I TO MERCURY ASTRONAUT SELECTION FACT SHEET

Clinical Examinations Given by the Lovelace Clinic

-Medical history and physical examination including internal examinations and orthopedic or other specialty consultations as indicated.

-Laboratory tests: hemoglobin (measure of oxygen carrying red pigment); hematocrit (examination of blood by use of a centrifuge); grouping; Rh factor; serology (examination of blood serums); sedimentation rate (analysis of urine deposits); stool examinations; urinalysis; gastric analysis; cholesterol (substance present in gallstones, heart ailments, etc.); liver function test; urinary steroid excretion (measure of the hormones, acids and poisons); blood nitrogen; blood protein; protein-bound iodine; special serum studies; throat culture, and chemical examination of body outputs, and blood counts.

-X-rays: chest, large intestine, sinuses, spine, stomach, esophagus, teeth and heart. Moving pictures were taken of the heart to determine any artery calcification.

-Eyes: history, dilation, visual fields, tonometry (measure of inner pressure on the eyes), slit lamp, dynamic visual acuity, depth perception, night vision, and photography of conjunctival vessel (eye membrane) and retina.

-Ears, nose and throat: examination of throat and nasal passages; audiogram with and without background noises; speech discrimination and voice tape recording.

-Heart: cardiograms of heart muscle contraction, heart stroke volume and heart sounds; measure of the chest which overlies the heart.

-Nerves and muscles: general neurologic examination with muscle testing; electric stimulation of the nerves to determine response; measure of any nerve abnormality; tracing of electric currents produced by the brain

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APPENDIX II TO MERCURY ASTRONAUT SELECTION FACT SHEET

Special Dynamic Examinations Given by the Lovelace Clinic

To Measure Body Efficiency

-Physical competence: measured by an ergometer, a device similar to a bicycle. Subject pedals increasing amount of weight while wearing an oxygen mask. Heartbeat and oxygen consumption determined. Evaluation is made by the amount subject can pedal by the time his heart reaches 180 beats per minute.

-Pulmonary function: lung capacity and breathing efficiency determined by measuring the amount of oxygen subject breathes normally and during excercise.

-Lean body mass: a correlation of the following:

Total body radiation count, conducted by the Atomic Energy Commission Los Alamos Laboratories to determine the amount of potassium in the body.

Specific gravity, weighing the subject in air and while he is totally immersed in water.

Blood volume, measured by inhaling a small amount of carbon monoxide and observing the amount absorbed by the blood after a specified time.

Water volume, determined by swallowing a small amount of tritium and observing its rate of dilution.

-Presence of heart chamber openings: amount of blood oxygen is measured during and after a Valsalva maneuver. The Valsalva exercise is accomplished by blocking the nose and blowing into a tube.

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APPENDIX III TO MERCURY ASTRONAUT SELECTION FACT SHEET

Stress Tests Conducted at the Wright Air Development Center

-Harvard step: subject steps 20 inches to a platform once every two seconds for five minutes to measure his physical fitness.

-Treadmill maximum workload: subject walks at a constant rate on a moving platform which is elevated one degree each minute. Test continues until heart reaches 180 beats per minute. Test of physical fitness.

-Cold pressor: subject plunges his feet into a tub of ice water. Pulse and blood pressure measured before and during test.

-Complex behavior simulator: a panel with 12 signals, each requiring a different response. Measure of ability to react reliably under confusing situations.

-Tilt table: subject lays on steeply inclined table for 25 minutes to measure ability of the heart to compensate for body in an unusual position for an extended time.

-Partial pressure suit: subject is taken in pressure chamber to a simulated altitude of 65,000 feet in an MC1 partial pressure suit. Test lasts one hour. Measure of efficiency of heart system and breathing at low ambient pressures.

-Isolation: subject goes into a dark, soundproof room for three hours to determine his ability to adapt to unusual circumstances and to cope with the absence of external stimuli.

-Acceleration: subject is placed in a centrifuge with his seat inclined at various angles to measure his ability to withstand multiple gravity forces.

-Heat: subject spends two hours in a chamber with the temperature at 130 degrees Fahrenheit to measure reaction of heart and body functions while under this stress.

-Equilibrium and vibration: subject is seated on a chair which rotates simultaneously on two axes. He is required to maintain the chair on an even keep by means of a control stick with and without vibration, normally and while blindfolded.

-Noise: subject is exposed to a variety of sound frequencies to determine his susceptibility to tones of high frequency.

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APPENDIX IV TO MERCURY ASTRONAUT SELECTION FACT SHEET

Psychological Tests Administered by Wright Air Development Center

-To determine personality and motivation: interviews; Rorschach (ink blot); apperception (tell stories suggested by pictures); draw-a-person; sentence completion; self-inventory based on 566-item questionnaire; officer effectiveness inventory; personal preference schedule based on 225 pairs of self-descriptive statements; personal inventory based on 20 pairs of self-descriptive statements; preference evaluation based on 52 statements; determination of authoritorian attitudes, and interpretation of the question, "Who am I?".

-To determine intelligence and special aptitudes: Wechsler adult scale; Miller analogies; Raven matrices; Doppelt mathematical reasoning test; engineering analogies; mechanical comprehension; officer qualification test; aviation qualification test; space memory; spatial orientation; hidden figures perception; spatial visualization, and peer ratings.

APPENDIX V TO MERCURY ASTRONAUT SELECTION FACT SHEET

Members of NASA Life Sciences Committee

Chairman, Dr. W. Randolph Lovelace II, Director of the Lovelace Foundation for Medical Education and Research, Albuquerque, New Mexico; Members: Capt. Norman L. Barr, (MC) Director, Astronautical Division, Navy Bureau of Medicine and Surgery, Washington, D. C.; LCdr. John H. Ebersole, (MC) Medical Officer, USS Seawolf, Fleet Post Office, New York, New York; Brig. Gen. Donald D. Flickinger, (MC), Surgeon and Assistant Deputy Commander for Research, Headquarters, Air Research and Development Command, Washington, D. C.; Lt. Col. Robert H. Holmes, (MC) Chief of Bio Physics and Astronautics Branch, Army Medical Research and Development Command, Washington, D. C.; Dr. Wright H. Langham, Los Alamos Scientific Laboratory, University of California; Dr. Robert B. Livingston, Director of Basic Research in Mental Health and Neurological Diseases, National Institutes of Health, Bethesda, Maryland; and Dr. Orr Reynolds, Director of Science, Office of the Assistant Secretary of Defense for Research and Engineering, Washington, D. C. Boyd C. Myers II, NASA Headquarters, is secretary of the committee.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D.C.

MALCOLM SCOTT CARPENTER — BIOGRAPHY

Project Mercury Astronaut

Malcolm S. Carpenter, a lieutenant in the U.S. Navy, was born May 1, 1925, in Boulder Colorado. He now lives at 11911 Timmy Lane, Garden Grove, California. His mother is living in Boulder at 5335 Broadway. Carpenter's father, a retired chemist, lives in Palmer Lake, Colo. His wife is the former Rene Louise Price, whose parents, Mr. and Mrs. Lyle S. Price, live at 963 Ninth Street, Boulder. The Carpenter's have four children: Mark Scott, 9; Robyn Jay, 7; Kristen Elaine, 3; and Candace Noxon, 2. Carpenter is five feet 10½ inches tall, weighs 160 pounds, and has green eyes and brown hair.

After receiving his early education through high school in Boulder, Carpenter entered Colorado College in 1943 to participate in the V-5 flight training program sponsored by the U.S. Navy. After a year there, he spent six months in training at St. Mary's pre-flight school, Moraga, Calif., and four months in primary flight training at Ottumwa, Iowa. When the V-5 program ended at the close of World War II, Carpenter, entered the University of Colorado to major in aeronautical engineering. He received a degree there in 1949.

Following his graduation, Carpenter joined the Navy and received flight training from November, 1949, to April, 1951, at Pensacola, Florida, and Corpus Christi, Texas. He spent three months in the Fleet Airborne Electronics Training School, San Diego, Calif., and, until October, 1951, in a Lockheed P2V transitional training unit at Whidbey Island, Washington.

In November, 1951, he was assigned to Patrol Squadron 6 based at Barbers Point, Hawaii. During the Korean conflict, he was engaged with Patrol Squadron 6 in anti-submarine patrol, shipping surveillance and aerial mining activities in the Yellow Sea, South China Sea and the Formosa Straits. In 1954 he entered the Navy Test Pilot School at the Naval Air Test Center, Patuxent River, Md., and after completion of his training, was assigned to the electronics test division of the NATC. In this assignment Carpenter conducted flight test projects with the A3D, F11F and F9F and assisted in other flight test programs. He then attended the Navy's General line School at Monterey, Calif., for 10 months and the Naval Air Intelligence School, Washington, D.C., for a further eight months. In August, 1958, he was assigned to the USS Hornet, anti-submarine aircraft carrier, as air intelligence officer. He has accumulated more than 2,800 flying hours, including 300 in jet aircraft.

His hobbies include skin diving, archery and water-skiing.

April 9, 1959

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

LEROY GORDON COOPER, JR.
Project Mercury Astronaut

BIOGRAPHY

Leroy G. Cooper, Jr., a captain in the U.S. Air Force, was born March 6, 1927, in Shawnee, Oklahoma. He is five feet, 9½ inches tall and weighs 150 pounds. The 32-year-old astronaut has blue eyes and brown hair. He considers as his hometown Carbondale, Colorado, where his parents, Col. and Mrs. Leroy G. Cooper, have a ranch. Colonel Cooper is retired from the Air Force. His wife is the former Trudy Olson of Seattle, Washington. The couple has two daughters, Camala K., 10, and Janita L., 9.

Cooper attended primary and secondary schools in Shawnee, and he attended the University of Hawaii three years. He received a degree in aeronautical engineering through the Air Force Institute of Technology at Wright-Patterson Air Force Base, Ohio, in August, 1956.

Cooper entered the Marine Corps in 1945 after his graduation from high school. He attended the Naval Academy Preparatory School and was a member of the Presidential Honor Guard in Washington immediately before his discharge in August, 1946. While at the University of Hawaii, he received a commission in the Army. He transferred this commission to the Air Force and was recalled by that service for extended active duty in 1949 for flight training. After his training, he was assigned to the 86th Fighter Bomber Group in Munich, Germany, as an F-84, and later, an F-86 pilot. After his graduation from AFIT, he was assigned to the Air Force Experimental Flight Test School at Edwards Air Force Base, Calif. He was graduated from this school in April, 1957, and was assigned duty in the Performance Engineering Branch of the Flight Test Division at Edwards. He conducted flight tests on experimental fighter aircraft. Cooper has 2,300 flying hours, including 1,400 in jets.

His hobbies are photography, riding, hunting and fishing.

April 9, 1959

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

JOHN HERSCHEL GLENN, JR. BIOGRAPHY
Project Mercury Astronaut

John H. Glenn, Jr., a lieutenant colonel in the U.S. Marine Corps, was born July 18, 1921, in Cambridge, Ohio. He considers New Concord, O., his permanent home. He attended primary and high schools in New Concord, and Muskingum College. His parents are Mr. and Mrs. John H. Glenn. The elder Glenn is a retired operator of a plumbing and heating business. Mrs. Glenn is the former Anna Margaret Castor, daughter of Dr. and Mrs. H. W. Castor. The elder Glenns and Castors all live on Bloomfield Road in New Concord. The Glenns have two children: John David, 13, and Carolyn Ann, 12. Glenn also has a sister, Mrs. Jean Pinkston, of Cambridge. He is five feet, 10½ inches tall, weighs 180 pounds and has green eyes and red hair.

Glenn entered the naval aviation cadet program in March, 1942. He was graduated and commissioned in the Marine Corps a year later. After advanced training, he joined Marine Fighter Squadron 155 and spent a year flying F4U fighters in the Marshall Islands. During his World War II service, he flew 59 combat missions. After the war, he was a member of Fighter Squadron 218 on North China patrol and had duty in Guam. From June, 1948, to December, 1950, he was an instructor in advance training at Corpus Christi, Texas. Glenn then attended Amphibious Warfare School at Quantico, Va. In Korea, he flew 63 missions with Marine Fighter Squadron 311 and 27 while an exchange pilot with the Air Force. In the last nine days of fighting in Korea, he downed three MiG's in combat along the Yalu River. After Korea, Glenn attended test pilot school at the Naval Air Test Center, Patuxent River, Md. After graduation, he was project officer on a number of aircraft, including the F8U, F8U-1 and F8U-P. Since November, 1956, he has been assigned to the Fighter Design Branch of the Navy Bureau of Aeronautics in Washington.

Glenn has been awarded the Distinguished Flying Cross on five occasions and he holds the Air Medal with 18 Clusters for his service during World War II and Korea. In July, 1957, while project officer of the F8U, he set a transcontinental speed record from Los Angeles to New York, spanning the country in three hours, 23 minutes. He has more than 5,000 hours of flying time, including 1,500 hours in jet aircraft. Glenn has been attending the University of Maryland during his Washington assignment.

The Glenn family hobbies are boating and water skiing.

April 9, 1959

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

VIRGIL IVAN GRISSOM
Project Mercury Astronaut

BIOGRAPHY

Virgil I. Grissom, a captain in the U. S. Air Force, was born April 3, 1926, in Mitchell, Indiana. Five feet, seven inches tall, he weighs 155 pounds and has brown eyes and brown hair. His parents, Mr. and Mrs. Dennis D. Grissom, live at 715 Baker St., Mitchell. He has two brothers, Norman, of Mitchell, and Lowell, a sophomore at Indiana University, and a sister, Mrs. Joe Beavers of Baltimore. Mrs. Grissom is the former Betty L. Moore. Her father, Claude Moore, lives in Mitchell. Her mother is deceased. The Grissoms have two sons, Scott, 9, and Mark, 5.

Grissom attended primary and high schools in Mitchell and was graduated from Purdue University with a degree in mechanical engineering in 1950.

He first entered the Air Force in 1944 as an aviation cadet. He was discharged in November,1945. He returned to aviation cadet training after his graduation from Purdue, and he received his wings in March, 1951. Grissom joined the 75th Fighter-Interceptor Squadron at Preque Isle, Me., as an F-86 fighter pilot. He flew 100 combat missions in Korea in F-86's with the 334th Fighter Interceptor Squadron. He left Korea in June, 1952 and became a pilot instructor at Bryan, Tex. In August, 1955, he went to the Air Force Institute of Technology at Wright-Patterson Air Force Base, Ohio, to study aeronautical engineering. In October, 1956 he attended test pilot school at Edwards Air Force Base, Calif., and returned to Wright-Patterson AFB in May, 1957, as a test pilot assigned to the Fighter Branch. He has flown more than 3,000 hours, over 2,000 in jets.

Grissom has been awarded the Distinguished Flying Cross and Air Medal with Cluster.

His hobbies are hunting and fishing.

April 9, 1959

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

WALTER MARTY SCHIRRA, JR. BIOGRAPHY
Project Mercury Astronaut

Walter M. Schirra (Shi-RAH) Jr., a lieutenant commander in the U. S. Navy, was born March 12, 1923, in Hackensack, New Jersey. The 36-year-old astronaut is five feet, 10 inches tall, weighs 185 pounds, and has brown hair and brown eyes. His parents, Mr. and Mrs. Walter M. Schirra, reside in Honolulu, Hawaii, where the elder Schirra is a civil engineer with the Air Force. The senior Schirra was a World War I ace in the Army Air Corps. After the war, he and his wife barnstormed throughout the Eastern United States in a light plane. The astronaut's wife is the former Josephine C. Fraser of Seattle, Washington. The couple has two children: Walter III, 8, and Suzanne Karen, 1. Mrs. Schirra is the daughter of Mrs. James L. Holloway, wife of Admiral Holloway, who was commander-in-chief of the Northeastern Atlantic and Mediterranean area. Schirra also has a sister, Mrs. John H. Burhans, who lives in Patuxent River, Md.

Schirra attended primary and junior high schools in Oradell, N. J. He was graduated from Dwight Morrow High School, Englewood, N. J., in 1940, and attended Newark (N.J.) College of Engineering one year. He was graduated from the U. S. Naval Academy in 1945.

Schirra has had service on board the battle cruiser Alaska, the staff of the Seventh Fleet, flight training at Pensacola, in a Navy fighter squadron (71), and as an exhange pilot with the 154th U.S. Air Force Fighter Bomber Squadron. He went with this squadron to Korea where he flew 90 combat missions in F-84E aircraft. He downed one MIG and has one probable MIG. He took part in development of the Sidewinder missile at China Lake, Calif. He was project pilot for the F7U-3 Cutlass and instructor pilot for the Cutlass and FJ3 Fury. He flew F3H-2N Demons as operations officer of Fighter Squadron 124 on board the carrier Lexington in the Pacific. He then attended Naval air safety officer school at the University of Southern California, and test pilot training at the Naval Air Test Center, Patuxent, Md. His last assignment was at Patuxent in suitability development work on the F4H. He has 3,000 hours of flying time, 1,700 hours in jets.

He has been awarded the Distinguished Flying Cross and two Air Medals for his Korean service.

April 9, 1959

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

ALAN BARTLETT SHEPARD, JR. BIOGRAPHY
Project Mercury Astronaut

Alan B. Shepard, Jr., a lieutenant commander in the U.S. Navy, was born Nov. 18, 1923, in East Derry, New Hampshire. The 35-year-old astronaut is five feet, 11 inches tall, weighs 160 pounds and has blue eyes and brown hair. His parents, Col. and Mrs. Alan B. Shepard, live in East Derry where the elder Shepard, a retired Army of the United States officer, is an insurance broker. Shepard is married to the former Louise Brewer of Kennett Square, Pa. The couple has two daughters, Juliana, 8, and Laura, 12. Shepard's sister, Mrs. Pauline S. Sherman, resides in Montclair, New Jersey.

Shepard attended primary school in East Derry and was graduated from Pinkerton School, Derry, N.H., in 1940. He studied one year at Admiral Farragut Academy, Toms River, N.J., and then entered the Naval Academy, Annapolis. He was graduated from Annapolis in 1944. He was graduated from the Naval War College, Newport, R.I., in 1958.

The astronaut saw service on the destroyer Cosgrove, in the Pacific during World War II. He then entered flying training at Corpus Christi, Texas, and Pensacola, Florida. He received his wings in March, 1947. Subsequent service was in Fighter Squadron 42 at the Norfolk Naval Air Station and Jacksonville, Florida. He also spent several tours in the Mediterranean. Shepard went to test pilot school at Patuxent River, Md., and served two tours in flight test there. During this service, he took part in high altitude tests to obtain data on light at different altitudes and in a variety of air masses over the North American continent. He also took part in experiments in test and development of the Navy's in-flight refueling system; carrier suitability trials of the F2H3 Banshee, and Navy trials of the first angled carrier deck. Between his flight test tours at Patuxent, Shepard was assigned to Fighter Squadron 193 at Moffett Field, California, a night fighter unit flying Banshee jets. He was operations officer of this squadron and made two tours with it to the Western Pacific on board the carrier Oriskany. He has been engaged in the test of the F3H Demon, F8U Crusader, F4D Skyray and F11F Tigercat. He was project test pilot on the F5D Skylancer. The last five months at Patuxent were spent as an instructor in the test pilot school. After his graduation from the Naval War College, Shepard joined the staff of the commander-in-chief, Atlantic Fleet, as aircraft readiness officer. He has 3,600 hours of flying time, 1,700 in jets.

Shepard's hobbies are golf, ice skating and water skiing.

April 9, 1959

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

DONALD KENT SLAYTON
Project Mercury Astronaut

BIOGRAPHY

Donald K. Slayton, a captain in the U. S. Air Force, was born March 1, 1924, in Sparta, Wisconsin. The 35-year-old astronaut is five feet, 10½ inches tall, weighs 160 pounds and has blue eyes and brown hair. His parents, Mr. and Mrs. Charles S. Slayton, live in Sparta. A brother, Howard, and sister, Mrs. Lyndahel Hagen, also live in Sparta. Slayton's immediate family also includes a brother Richard, of San Jose, Calif.; another brother, Elwood, and two sisters, Mrs. Milton Madsen and Mrs. Harold Schluenz, all of Madison. His wife is the former Marjorie Lunney, daughter of Mr. and Mrs. George Lunney of Los Angeles, Calif. The Slaytons have one son, Kent, 2.

Slayton attended primary and high schools in Sparta, graduating from Sparta High School in 1942. He entered the University of Minnesota in January, 1947, and was graduated with a degree in aeronautical engineering in August, 1949.

He entered the Air Force as an aviation cadet in 1942 and after instruction at Vernon, Tex., and Williams, Ariz., won his wings in April, 1943. He flew 56 combat missions in B-25's in Europe with the 340th Bombardment Group (Medium). In mid-1944, he returned to this country as a B-25 instructor pilot at Columbia, S.C., and then served with a unit checking out pilots in the A-26. He joined with 319th Bombardment Group (Medium) and went to Okinawa in April, 1945, where he flew seven combat missions over Japan. He was an instructor pilot in B-25 aircraft for about a year after the war. Following his graduation from the University of Minnesota, he was an aeronautical engineer with Boeing Aircraft Co. in Seattle, Washington, until recalled in early 1951 to active duty with the Air National Guard, in which he maintained membership during his student days at the University of Minnesota. On his recall, he was assigned to Minneapolis as maintenance flight test officer of an F-51 squadron. He then spent a year and one-half at 12th Air Force Headquarters as technical inspector, and a like period as fighter pilot and maintenance officer with the 36th Fighter Day Wing in Bitburg, Germany. He returned to the United States in June of 1955 and attended the Air Force Flight Test Pilot School at Edwards Air Force Base, Calif. Since January, 1956, he has been an experimental test pilot at Edwards, where he has flown all jet fighter type aircraft built for the Air Force. His last assignment was chief of Fighter Section A. He has 3,400 flying hours, 2,000 in jets.

Slayton holds the Air Medal with Cluster.

His hobbies are hunting, fishing, shooting, archery, photography and skiing.

April 9, 1959

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

~~PRESS~~ CONFERENCE
MERCURY ASTRONAUT TEAM

Thursday, 9 April 1959
2:00 p.m.

The press conference was called to order at 2:00 p.m., Mr. Walter T. Bonney presiding.

PRESENT:

WALTER T. BONNEY, Presiding.

DR. T. KEITH GLENNAN

DR. W. R. LOVELACE, II

BRIG. GENERAL DONALD D. FLICKINGER

CAPTAIN NORMAN BARR, U.S.N.

ROBERT R. GILRUTH

CHARLES J. DONLAN

ASTRONAUTS:

LT. MALCOLM S. CARPENTER, U.S. Navy.

CAPTAIN LEROY G. COOPER, JR., U.S. Air Force.

LT. COL. JOHN H. GLENN, JR., U. S. Marine Corps.

CAPTAIN VIRGIL I. GRISSOM, U.S. Air Force.

LT. COMMANDER WALTER M. SCHIRRA, U.S. Navy.

LT. COMMANDER ALAN B. SHEPARD. U. S. Navy.

CAPTAIN DONALD K. SLAYTON, U. S. Air Force.

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MERCURY ASTRONAUT TEAM

MR. BONNEY: Ladies and gentlemen, may I have your attention, please.

The rules for this briefing are very simple. In about sixty seconds we will give you the announcement that you have all been waiting for: the names of the seven volunteers who will become the Mercury Astronaut Team.

Following the distribution of the kit -- and this will be done as speedily as possible -- those of you who have P.M. deadline problems had better dash for your phones. We will have about a ten or twelve minute break during which the gentlemen will be available for picture taking. There will be no talk, however. Then we will reconvene, hoping that the P.M. boys have done their file and come back and start the presentation and the "Q" and "A".

VOICE: One question. What time are you going to start?

MR. BONNEY: In about thirty seconds.

QUESTION: About what time will you start the "Q" and "A"?

MR. BONNEY: About twelve minutes after the distribution of the press kits. There will be a presentation by the several gentlemen involved, followed by the "Q" and "A".

It is now 2:00 o'clock. Please distribute the press kits.

Gentlemen, these are the Astronaut volunteers. Take your pictures as you will, gentlemen.

(There was a short recess for picture taking.)

MR. BONNEY: Ladies and gentlemen, it is my very real pleasure to introduce to you the Administrator of the National Aeronautcs and Space Administration, Dr. T. Keith Glennan.

DR. GLENNAN: Ladies and gentlemen: Today we are introducing to you and to the world these seven men who have been selected to begin training for orbital space flight.

These men, the nation's Project Mercury Astronauts, are here after a long and perhaps unprecedented series of evaluations which told our medical consultants and scientists of their superb adaptability to their coming flight.

Which of these men will be first to orbit the earth, I cannot tell you. He won't know himself until the day of the flight.

The Astronaut training program will last probably two years. During this time our urgent goal is to subject these gentlemen to every stress, each unusual environment they will experience in that flight.

Before the first flight we will have developed our Mercury space ship to the point where it till be as reliable as man can devise. We expect it to be as reliable as any experimental aircraft.

It is my pleasure to introduce to you and I consider it a very real honor, gentlemen, from your right, Malcolm S. Carpenter; Leroy G. Cooper; John H. Glenn, Jr.; Virgil I. Grissom; Walter M. Schirra, Jr.; Alan B. Shepard, Jr.; and Donald K. Slayton, are the nation's Mercury Astronauts.

(Applause.)

MR. BONNEY: There will be other opportunities for picture taking later in the afternoon. Now if we can move on, I would like to introduce five gentlemen who have had a very important part in the selection process and in the planning to date. I introduce them not in the order they will be speaking to you but in the way it is written down for me here.

Dr. Randolph Lovelace, Chairman of the NASA Life Sciences Committee.

Brigadier General Donald Flickinger of the Air Force, and Captain Norman Barr, of the Navy. They have had the responsibility for the selection primarily in the aero-medical field.

Also, Robert Gilruth, Director of Project Mercury and of the Space Task Group that is working on this project.

Charley Donlan, his assistant.

Now, I would would like to call upon Bob Gilruth to say a few words.

MR. GILRUTH: Ladies and gentlemen: I am delighted to be here on this occasion. I am sure you are all familiar with the objectives of Project Mercury. I don't intend to make any speech whatsoever about it becauae I know you are all here primarily to meet our Astronauts.

Thank you very much.

MR. BONNEY: Now I would like to call on Dr. Lovelace, who will tell you a little bit about the physical examinations which were given these young men.

Dr. Lovelace.

DR. LOVELACE: I just hope they never give me a physical examination. It has been a rough, long period that they have been through. I can tell you that you pick highly intelligent, highly motivated and intelligent men, and every one is that type of a person, and our job is a relatively easy one.

They are as you know family men. I am not worried about their stability, their powers of observation, or their powers to accomplish the task which they are given. I can tell you that I am very, very thrilled that we have had a part in the program.

MR. BONNEY: As all of you know, the Air Force participated very importantly in throwing its aero-medical resources to help in our task. Don Flickinger may have a few words to say.

GENERAL FLICKINGER: Thank you, Walt. I really am here as a spokesman only for the team of scientists which we pooled together at the Aero Med Lab at Dayton. We pulled these scientists together from both the Army and the Navy and Air Force resources. This was a composite team whose objectives were to subject all of the candidates to stresses which most nearly simulated those which ~~we project for the individual~~ in the first orbital flights of Project Mercury.

All that I have to say, Walt, is that from our standpoint the most difficult job was in not taking all of the 31 or 32 that started through. It was really a difficult job and it is a great tribute, I think, to our Air Force, Navy, and Marine flying personnel that they came through with such flying colors.

I have been very proud to be associated with this project and we on the aeromedical side have learned a great deal from it.

Thank you.

MR. BONNEY: Thank you, Don.

You photographers I am afraid we will have to ask you to sit down. We are trying to give as much of a break to everybody as possible. We have limited facilities, as all of us are experiencing. The boys with the long lenses in back do have problems. So please will you sit down, and this includes the young man with the telephoto lens.

I will ask you not to take pictures until after we get through with the "Q" and "A". We have ordered it this way, please.

Now I would like to call on Captain Norman Barr.

CAPTAIN BARR: Thank you very much. I am quite sure that no finer group of men could have been selected by the tests that are available to us today. All of us are very sure that the correct men have been selected for this program. These men have been chosen from a population of about 180 million to represent the United States in this important project. We are all behind them a hundred percent.

MR. BONNEY: Thank you, Captain Barr.

Now I will call on Charles Donlan, who is Mr. Gilruth's right-hand man.

MR. DONLAN: There is little I can add to what has been said except that we are delighted to have these Astronauts with us. They bring to the program a wide range of experience, engineering, and flying, and other scientific engineering disciplines. I hope we are going to have a chance to work with them with a bigger proportion than we have had to date.

MR. BONNEY: Thank you.

Now we come to the "Q" and "A". I ask you ladies and gentlemen to address your questions to me. I will repeat them and then we will get them answered.

Peter?

QUESTION: I would like to ask Lieutenant Carpenter if his wife has had anything to say about this, and/or his four children?

LIEUTENANT CARPENTER: They are all as enthusiastic about the program as I am.

QUESTION: How about the others? Same question.

MR. BONNEY: Suppose we go down the line, one, two, three, on that. The question is: Has your good lady, and your children, had anything to say about this?

CAPTAIN COOPER: Yes, mine have. Mine are very enthusiastic also. I can answer the same for myself.

COLONEL GLENN: I don't think any of us could really go on with something like this if we didn't have pretty good backing at home, really. My wife's attitude toward this has been the same as it has been all along through all my flying. If it is what I want to do she is behind it, and the kids are too, a hundred percent.

CAPTAIN GRISSOM: My wife feels the same way, or of course I wouldn't be here. She is with me all the way. The boys are too little to realize what is going on yet, but I am sure they will feel the same way.

COMMANDER SCHIRRA: My wife has agreed that the professional opinions are mind, the career is mine, and we also have a family life that we like. This is part of the agreement. I can't say much for my youngest daughter -- she is only eighteen months old. But my son has quite an interest in the program.

COMMANDER SHEPARD: I have no problems at home. My family is in complete agreement.

CAPTAIN SLAYTON: I can say what the other gentlemen have said. What I do is pretty much my business, profession-wise. My wife goes along with it.

MR. BONNEY: The next question, please?

QUESTION: This is a general question. I see you have three Air Force, three Navy, and one Marine. Is this on purpose so that each of the services is represented?

MR. BONNEY: The question is, we have three Air Force, three Navy, and one Marine. Was this on purpose?

I would like to answer that one, if I might, because I was born in Vermont, which is almost as bad as being born in Missouri from the standpoint of looking at things with a somewhat jaundiced eye. I said, "How come it came out this way?" Randy Lovelace tells me, Bob Gilruth tells me, everyone associated with the Project tells me that they did it by numbers and not by service, and it just happened that way.

Next question?

QUESTION: I notice that the three gentlemen on our left have been smoking. I wonder what they are going to do for a cigarette when they get up there?

MR. BONNEY: The question is -- and the tobacco trust please close your ears -- it is noticed that three of our seven young men are smoking. What will they be doing when they get up in the capsule?

Perhaps, Randy, you might tackle that one.

DR. LOVELACE: I think they are mature men and we will leave it up to them in large part. Of course we have a few months for an indoctrination program.

QUESTION: Do all of them smoke?

MR. BONNEY: How many of you gentlemen smoke?

CAPTAIN SLAYTON: I will have to qualify myself.

(There was a showing of hands.)

MR. BONNEY: Three and a half.

I quit once for three and a half days.

QUESTION: The words "high motivation" have been used here today and earlier. What is the motivation of these men?

MR. BONNEY: The question is: What is the motivation of these men?

Let's try that starting from the left and down.

QUESTION: Can we get them to give their home towns, also?

MR. BONNEY: Yes, will you give your home town and age as you do this. This will be helpful to the boys on the lenses and also to the reporters.

QUESTION: Their names first.

MR. BONNEY: Full name, age, and home town, please.

CAPTAIN SLAYTON: My full name is Donald K. Slayton.

My home town is Sparta, Wisconsin. My age is 35. I am in the Air Force. As far as my motivation is concerned, I feel that this is the future of not only this country but the world. We have gone about as far as we can on this globe, and we will have to start looking around a bit.

It is just a natural expansion of flight. I consider it in that light. It is an extension of flight and we have to go somewhere and that is all that is left. This is an excellent opportunity to be in on something new, to begin with.

COMMANDER SHEPARD: I am Alan B. Shepard from East Derry, New Hampshire. I am also 35. I don't think there is any question but that we are on the threshold of space travel. We have seen many evidences along that line. The Project Mercury is just one part of the endeavor toward space travel.

I quite personally am intensely interested in it and just delighted to have been given the opportunity to participate.

COMMANDER SCHIRRA: My name is Walter Schirra -- Walter M. Schirra, Jr. I originally came from Wardell, New Jersey. I think in my answer to what is my motivation, I think it is typical of most of us in this country: We are interested in new things. Aviation has been a new thing, now it is a 50-year old thing.

I might add that in talking to my mother just recently, asking her if she had any anxieties about this, I had an answer. My father was one of the very early aviators. His parents faced the same problem. So I feel it is an expansion in another dimension, much as aviation was an exapansion on the surface of the earth.

CAPTAIN GRISSOM: I am Virgil I. Grissom, from Mitchell, Indiana. I am 33. My career has been serving the nation, serving the country, and here is another opportunity where they need my talents. I am just grateful for an opportunity to serve in this capacity.

COLONEL GLENN: I am John Glenn. I am the lonesome Marine on this outfit. I am 37. In answer to this same question a few days ago from someone else I jokingly, of course, said that I got on this project because it probably would be the nearest to Heaven I will ever get and I wanted to make the most of it.

But my feelings are that this whole project with regard to space sort of stands with us now as, if you want to look at it one way, like the Wright brothers stood at Kitty Hawk about fifty years ago, with Orville and Wilbur pitching a coin to see who was going to shove the other one off the hill down there. I think we stand on the verge of something as big and as expansive as that was fifty years ago.

I also agree wholeheartedly with Gus here. I think we are very fortunate that we have, should we say, been blessed with the talents that have been picked for something like this. I think we would be almost remiss in our duty if we didn't make full use of our talents. Every one of us would feel guilty I think if we didn't make the fullest use of our talents in volunteering for something that is as important as this is to our country and the world in general right now.

This can mean an awful lot to this country, of course.

CAPTAIN COOPER: I am Leroy G. Cooper, Jr., Carbondale, Colorado, age 32. It is always a disadvantage to have to speak loud. I think the others have expressed very well and I think we are motivated by -- I myself, I should say -- am motivated by the fact that I am a career officer, career pilot, and this is something new and very interesting.

LIEUTENANT CARPENTER: I am Malcolm Scott Carpenter, from Boulder, Colorado. I am 33. I think we are all of a mind on this motivation question. It is a chance to serve the country in a very noble cause. It certainly is a chance to pioneer on a grand scale. I am very happy and proud to have been given the opportunity.

MR. BONNEY: Thank you, gentlemen.

Next question?

QUESTION: What element of suitability is there about being a family man that eliminated all the bachelors and brought out seven family men?

MR. BONNEY: General Flickinger is a bachelor, and he laughed so we will give him a chance to answer that question.

The question is: All of these men are very demonstrably family men. Why is it that family men were picked instead of bachelors?

Don, as a bachelor, will you answer that, please?

GENERAL FLICKINGER: The only thing I can say is that the medical statistics prove that maried men live longer than bachelors. We hope to keep these people in the project a real long time.

MR. BONNEY: It doesn't always seem that way to another married man.

QUESTION: Another question is the age. ARe men over thirty more stable, reliable, or what?

MR. BONNEY: The question is: What about their age? Are men over thirty more stable, more reliable, or what?

Captain Barr, perhaps you might like to answer that one.

CAPTAIN BARR: In addition, of course, to the medical qualifications, there are certain other qualifications. For example, these men had to have a technical background in the subjects related to this new specialty. They had to have about 1,500 hours as pilots of jet-type aircraft. They had to know some astronomy, applications, many other basic sciences. You can not find younger men than these who meet these qualifications.

QUESTION: Dr. Lovelace said that the men had a few months for indoctrination. Would you want to give an educated guess as to how many months before?

MR. BONNEY: The question is, according to Dr. Lovelace, there will be several months for indoctrination. How long would this take?

The answer to that, and if I might try to provide it instead of Dr. Lovelace, it would be that these men will be in training and getting experience right up until the time that they will be making their flights, which as Dr. Glennan said earlier this afternoon, will be in a couple of years, we hope.

Bill Levitt?

MR. LEVITT: One of these gentlemen will make the initial flight. But is it scheduled that the other six will make subsequent flights?

MR. BONNEY: The question is: There are seven gentlemen; one of them obviously has got to be first. Will the others also participate?

Indeed they will. They will participate all the way through, and this is one reason why we cut the number from twelve to seven. Perhaps the most important single reason for cutting from twelve to seven, so as to give all of them a maximum participation in the program. We expect to make more than one orbital flight by far.

Peter?

QUESTION: When the final day comes around, or the final week, whatever it is, how will the final selection be made and by whom?

MR. BONNEY: When the final day or week or hour comes around, how will the selection process be made and by whom?

I think perhaps Bob Gilruth might want to tackle that one, insofar as he can at this time.

MR. GILRUTH: I think you are asking for a lot in that question, inasmuch as we have so far yet to go in the Mercury Program. Not only pilot-training-wise but hardware-wise.

All of these models of the capsule you see, the systems that we have talked about, are all yet to be translated into real hardware. This real hardware has to be tested, retested, and where found wanting it has to be corrected and proven out.

We are still a very long way from being far enough down the road to answer when we will have the final system and just how we will go about picking the best-qualified man at the time.

MR. BONNEY: I might add a footnote to that.

I had the privilege last evening of meeting these gentlemen at Langley for the first time. My guess is that it is going to have to be pretty much a matter of drawing straws, because all seven of them should be first.

Bob?

QUESTION: Could I ask for a show of hands of how many are confident that they will come back from outer space?

MR. BONNEY: The question is for a show of hands from you seven as to how many of you are confident you are going to come back?

(All seven astronauts raised their hands.)

(Laughter.)

QUESTION: What lies immediately ahead of these men? Will they continue in their normal service assignments, or will they be segregated from now on?

MR. BONNEY: The question is: What will happen to these men; will they continue their normal service assignments?

They will not. They will shift over to NASA as soon as they can get their family moved down to Langley Field. They will participate in the Program in the most intimate sort of way. As the biographies will show, they all have engineering backgrounds, they will be working on the hardware; they will be working on the systems; they will also be very intensively carrying on their training program.

QUESTION: As of now, which do you expect to finish first, the space vehicle or the training program?

MR. BONNEY: The question is: As of now, which will finish first, the space vehicle or the training program?

The answer is, if it is not a dead heat, we are not doing our job right.

QUESTION: Walt, as we understand it then, these seven men are going to be taken along together in every stage of their preparation?

MR. BONNEY: The question is: It is understood all seven will be carried along as a team, participating in concert in every step of the program.

The answer is, 100 percent correct.

Paul?

QUESTION: What salary will these gentlemen receive as civil servants?

MR. BONNEY: The question is: What salary will these gentlemen receive as civil servants and as astronauts?

The answer is, their service pay. I think this is correct.

QUESTION: Will they remain in the service?

MR. BONNEY: They will remain in the service, detached to NASA.

QUESTION: Will there be hazardous-duty pay involved?

MR. BONNEY: Question: Will there be hazardous-duty pay involved?

Bob?

MR. GILRUTH: That is correct.

MR. BONNEY: There will be hazardous-duty pay involved.

QUESTION: Equivalent to flight pay?

MR. BONNEY: Yes. It is the same as flight pay. In other words, they don't get a dime extra.

QUESTION: One other question. Were any civilian test pilots considered, or is this confined to military career pilots, and why?

MR. BONNEY: The question is: Were any civilian test pilots considered or was the selection process limited to the military testpilots?

The answer to that is that the selection process was limited to the military test pilots. It was a purely arbitrary decision because we knew that the records on these people were available. We could run them through the machines and very quickly make first-cut selections from an elite group.

Phil?

QUESTION: You say these men will be detached to NASA. Will they be eligible for military promotion during that time?

MR. BONNEY: The question is: Will they be detached from military duty and assigned to NASA; will they be eligible for promotion in the military?

The answer is: Yes, indeed, they will.

QUESTION: I am still hazy on this one point. Is it planned that each one of these seven will make orbital flights?

MR. BONNEY: To the extent possible. The question is: Is it planned that all seven will make orbital flights?

To the extent practicable, the answer is Yes. We expact to bring the capsules back. We expect to use them more than once.

QUESTION: Where will these flights originate?

QUESTION: I would like to get back to the astronauts for a minute, if we could. It would be interesting if we could hear briefly from each of them what is their sustaining faith. Do any of them have a particularly strong religious faith, or is it motivation of service to country? What are they hanging on to?

MR. BONNEY: Getting back to the motivation, the question is: What is the sustaining faith of the gentlemen; what is the basic motivation?

Again, let's start with Brother Carpenter.

LIEUTENANT CARPENTER: As far as I am concerned, my sustaining faith, I think, is the fact that I believe we have the best minds in the country behind this project.

CAPTAIN COOPER: I would like to clarify this question. Do you mean by "sustaining faith" our sustaining faith in life? Or in the project itself?

QUESTION: My feeling was that you men are obviously risking your lives. We all of us hang on to something as we go through life and feel that if we are risking our lives, it is worth it. And also those who have a religious bent feel that if things don't go right that religion takes care of that. I would like to know if any of you have a religious, a strong religious feeling.

CAPTAIN COOPER: Yes, for myself I am a Christian, a Methodist, and I think religion is definitely with those who are Christians a sustaining aid. Likewise, I believe that I have faith in the people that I am working with in this program, and I know it will be a success.

MR. BONNEY: Before we get to the next one, let's go back to Carpenter and let him fill out that particular question so that we will get a full reading on it.

LIEUTENANT CARPENTER: If the question involved religious faith, I have that, although I don't call on it particularly associated with this project. I am merely a faithful church-goer, where it is possible. I think this might help sustain my, also.

COLONEL GLENN: As far as faith in the program goes, to cover that part of it, yes, I have all the faith in the world in the people running this thing. If we didn't think we had the finest brains in the country working on this thing, I am sure all of us would look at it with a pretty jaundiced eye.

We are pretty new to this, our dealings with the people in this program so far, but naturally, from what we have seen and what we know of the people so far, we have a lot of faith in them.

As far as religious affilliations go, I am a Presbyterian, a Protestant Presbyterian, and take my religion very seriously, as a matter of fact. I have taught Sunday school in the Presbyterian Church and I was on the Board of Trustees at the last duty station, and a few things like that. We are very active in church work, and the kids are in Sunday school and all the things connected with the church work.

My own feelings, as far as religious background on this, are very easy. I think you will find a lot of pilots who like to take what I consider to be sort of a crutch and look at this thing completely from a fatalistic standpoint, that sometime I am going to die so I can do anything I want in the meantime, and it doesn't make any difference because when my time comes I am going anyway. This is not what I believe.

I was brought up believing that you are placed on earth here more or less with sort of a 50-50 proposition, and this is what I still believe. We are placed here with certain talents and capabilities. It is up to each of us to use those talents and capabilities as best you can. If you do that, I think there is a power greater than any of us that will place the opportunities in our way, and if we use our talents properly, we will be living the kind of life we should live.

This is the way I look at this whole program. I look at it, if I use the talents and capabilities I happen to have been given to the best of my ability, I think there is a power greater than I am that will certainly see that I am taken care of if I do my part of the bargain.

CAPTAIN GRISSON: I consider myself religious. I am a Protestant and belong to the Church of Christ. I am not real active in church, as Mr. Glenn is, but I consider myself a good Christian still. We usually hold Sunday school for my church, when I am away from home. I enjoy this very much.

As far as faith in the program, I couldn't agree more with what Mr. Glenn said. I have faith in the people who are working with us and on the capsule.

LT. CDR. SCHIRRA: I have followed the Episcopal Church as my faith. I have been an active participant in church activities.

I think I should like to dwell more on the faith in what we have called the machine age. We have the faith in the space age. The remarks the other fellows made about the best minds in the country involved in this project obviously have to apply.

All of us have had faith in mechanical objects. We have been driving cars, sometimes not successfully; we have been flying airplanes, some not successfully. I think the space program will have problems in it. Again, you have to believe that we are trying to do something and we are going to do it as well as we can.

LT. CDR. SHEPARD: To answer your question about faith, I don't mean to slight the religious angle in my answer. I of course am a Christian and attend church. I think pertinent here is the entire philosophy of the Project Mercury, as expressed by Dr. Glennan in the latter part of January, I believe, and possibly to rephrase his words a little, this project is not in direct competition with any other agency as we know it. The project is described to you people, and to us, as merely one step in the evolution of space travel.

Along those lines, I would like to say that I think it is also pertinent to state that the risk, as you put it, is not as great as you possibly feel that it is.

The program is designed, yes, as a step in the evolution of space travel, and as such, I am sure that the men connected with this project will not attempt space flight until we have reached the probability which has been set. The probability which has been set is higher; in other words, we have a better chance of coming back than we have many of us here in our contemporary duties on routine test flights in which we have been serving.

I would like to discount the fact that this project is extremely hazardous. And also to agree with what Dr. Glennan said: It is not a technical race, it is a step in the evolution of space travel.

CAPTAIN SLAYTON: As far as my religious faith is concerned, I am a Lutheran, and I go to church periodically. Like most of the other people, I don't feel that any particular extra faith is called for in this program over what we normally have.

I have been flying in the Air Force for seventeen years. Many people think flying is hazardous. I don't. I have been test flying for the past four years and I don't think this is especially hazardous. To me, it is just a normal extension of flight.

I see nothing about it that is any more hazardous than what I have been doing for the last four years.

MR. BONNEY: Question?

QUESTION: Could you tell us what Mr. Shepard's church affiliation is?

MR. BONNEY: Mr. Shepard, your church affilliation, if you care to say?

LT. CDR. SHEPARD: Yes. I am not a member of any church. I attand the Christian Science Church regularly.

MR. BONNEY: Question?

QUESTION: In the event one of these gentlemen were eliminated from the program during the period, will he be replaced?

MR. BONNEY: The question is: In the event that for any reason one of these gentlemen becomes eliminated from the program, will he be replaced?

Bob?

MR. GILRUTH: Not necessarily.

MR. BONNEY: Not necessarily. And, as I understand it, we don't think that it will be necessary.

QUESTION: Have you got more work to do at Wright-Patterson with this group, or will they all be at Langley?

MR. BONNEY: The question is: Do we have more work to do at Wright-Patterson, or will all the work be done at Langley?

If I might give the answer to that one: Yes, indeed we will be going back to Wright-Patterson. We will be going to Johnsville, Pennsylvania, where the Navy has a centrifuge. We may be going to a number of other service installations or medical facilities around the country.

This is in truth and in every possible way of saying it a national program in which every resource of the nation, in the areas required, is being called upon.

QUESTION: While all their wives are going along with them now, they say, do they recall their wives' first reactions when they said they were going to volunteer?

MR. BONNEY: The question is, or the observation, take your choice: While the wives of these seven men at the present time are all giving their support to the project, what about when it gets closer to the first orbital flight, and would the gentlemen like to recall, if they can, their wives' first reaction to a hazardous undertaking?

QUESTION: When they decided they wanted to volunteer.

MR. BONNEY: When he decided to volunteer for this project. Let's start in the middle with Brother Grissom.

CAPTAIN GRISSOM: There was never any question in my mind about volunteering. It was just could I get in on the program. When I said something to my wife, what she thought about my volunteering, she said: "Do you even have to ask?"

COMMANDER SCHIRRA: It was way back, when the first information on this program came in, when everyone of us -- as well as those of us sitting right here -- were wondering about the same thing. I remember my onw reaction, that we were a bunch of idiots. My wife felt the same way.

It takes a little education. I had to be educated, too. I think that is what we are trying to do to you today, to educate you to the fact that we are not playing games. This is serious business. You can't just face up to this thing and say we are going to -- as Mr. Donlan said -- put a million dollars in the can and fire it into space. It is nothing like that at all. You don't make a program out of something as crude as that.

This is a professional program. We are trying to do something with it. Most people have asked me, "Why are you in this idiotic program?" I immediately say, "If you will take a little bit of time to think about it, and study it, you will realize that this is something that we are very serious about."

COMMANDER SHEPARD: The answer to the question about my wife's original reaction, I believe I indicated earlier that she was in complete support of my professional decision. She is now, and has been at all times.

CAPTAIN SLAYTON: My wife isn't too concerned about what I do professionally. She is more concerned with whether I can find a baby sitter and whether there is a commissary nearby to buy groceries and that sort of thing. Whether I am in this program or in a filling station doesn't make any difference.

LIEUTENANT CARPENTER: My wife's enthusiasm has matched mine throughout the program. As a matter of fact, when I was notified that I was being considered during the second and third days of the competitive program I was at sea at the time, and so my wife called Washington and ~~volunteered~~ volunteer for me.

(Laughter.)

CAPTAIN COOPER: That is the best one yet.

I have never had any problem so far as my wife going along with my career. My wife is also a pilot and is quite sympathetic, and particularly to this program. She is enthusiastic.

COLONEL GLENN: My wife made a remark the other day, I "have been out of this world for a long time, I might as well go on out."

I think all the wives, at least my wife, when they first hear something like this, they have reservations about it because they don't know anything about it. It is like all of us. When you first hear of something like this, you are very interested, but you sure want to find out a lot more about it before you are willing to place your neck way out there. I think that is the way all of us have been.

I think I can best describe my wife's reaction in that as she has learned more about the program as I have gone through some phases of it, she has learned more about it with me, and she has become as enthusiastic as I am.

I don't recall her initial reaction on this when we first started talking about that. It is just one of those things that you come home and start talking about like anything else.

QUESTION: Is Dr. Lovelace's work done or will he continue with the program? If so, what will he continue doing?

MR. BONNEY: The question is, is Dr. Lovelace's work done; and if the answer is No, it isn't, what will he be doing?

I can tell you very quickly, his work isn't done by a jug full, but perhaps Randy would like to explore on that just a little bit.

DR. LOVELACE: We hope to continue to participate in the program. I might say that all our doctors and technicians are a little tired at the moment. We are going to let them take some time off. We have more of these tests to do in the near future.

QUESTION: Does NASA feel that one of these gentlemen here will be the first human being to go into orbit, or will the Russians beat us to it?

MR. BONNEY: The question is, does NASA feel that one of these seven gentlemen will be the first to go into orbit, or will the Russians beat us to it?

To answer that I would like to quote in a general way comments made directly both by Dr. Glennan and by Hugh L. Dryden, Deputy Administrator of NASA, that we won't be at all surprised if the Russians get out there first because they may well have started on their man in space project before we did. But if trying will have anything to do with it, we will get there just as quickly as anybody.

GENERAL FLICKINGER: I think that everyone can understand my sort of, you might say, emotional attachment to the boys that we have been working with. I think it is quite possible that the Russians have us beat in terms of propulsion, but I maintain that given cards and spades that the quality of our human component will be far superior to theirs, and we will learn more from our first manned flights than they will from theirs.

MR. BONNEY: Thank you very much.

QUESTION: Along those lines, about a year and a half ago, a Navy spokesman said that there won't be any space flying with a single man in the capsule because it would be more or less a publicity stunt, that one man would have to sleep part of the time and that kind of thing. Beyond the first orbital flight, is it planned to send a man up in more than one orbit, or is this going to be a multi-crew project?

MR. BONNEY: Can you break that down into one or two questions instead of an afternoon's worth?

QUESTION: This is the first step.

MR. BONNEY: This is indeed the first step.

QUESTION: Will the second step involve one man?

MR. BONNEY: We don't know yet. It is in the planning stage. The question is: Will the second step, after Project Mercury, involve more than one man?

The answer is We don't know yet, but for sure the second or third or fourth step will involve more than one man.

QUESTION: I have a question about physical requirements. Is the most important thing the stamina to withstand an immediate shock, or endurance to stand a long gruelling strain?

MR. BONNEY: The question is about physical requirements. Is it stamina to endure a long gruelling strain or is it stamina to endure a shock?

Captain Barr, General Flickinger, and Dr. Lovelace, you can flip coins on that one.

DR. LOVELACE: I feel that the problem will be one of multiple stresses, and I think Captain Barr and General Flickinger will feel the same way, and the way the program is set up I feel that every many here can withstand the stresses to which they will be subjected.

I forgot one thing when you asked if we were going to follow along in the program. There will be a Major Bill Douglas, Flight Surgeon, who will be with the men all the time. There have already been some fellows at Langley Field with them who participated in the program to a very minor extent.

QUESTION: I don't know what that means. Does that mean by "stresses" a long time endurance? Or a momentary shock?

GENERAL FLICKINGER: I will try to be as specific as I can with you, and am willing to get into specifics if you want to take the time. Really if I could give you this picture, we start out, as you already know, with an extremely detailed clinical examination, perhaps the most exhaustive that has ever been devised. Then we go from that to, as I say, this battery of what we call simulated space stresses. This is the full spectrum of it, isolation confinement, dynamic forces as a part of the vehicular expenditure of energy to get into orbit, and destruction of that energy to get back on to land.

It turns out that when you pick people with you might say a superior foundation physically, with a good mature psychological approach to hazardous and new types of experiences, that by and large you will find that for any individual stress, whether it be an impact force of 50 Gs for a short period of time or prolonged exposure of say six to eight to ten Gs for the re-entry pattern, that by and large this individual will react favorably to all of these stresses, both individually and combined. And that is what these candidates proved in the stress tests.

Does that answer the question?

QUESTION: Yes.

I would like to ask General Flickinger if the scientists, if the doctors plan any particular pep pills or injections or anything they can give them before they go up or take along, to sustain them and combat this fatigue?

MR. BONNEY: The question is, will pep pills or other means be used to keep these boys at maximum alertness throughout their orbital flight? The question is addressed to General Flickinger.

GENERAL FLICKINGER: Specifically, No. We won't resort to any pep pills. They certainly will be trained on all of what you might say ordinary medical emergencies that might occur to them either as a result of vehicular failure, component failure, or some acute happening to themselves.

But we have definitely proven in the work that we have done on ground simulators that for the duration of the mission that they are expected to perform, we will have no need to have artificial stimulation. They have their own built-in governing factor which is quite adequate.

MR. BONNEY: Question?

QUESTION: Walt, you have been talking about orbital flight. Do you have any idea of when you might be ready to begin manned flights in ballistic missiles over less than-orbital range?

MR. BONNEY: The question is, we have been talking about orbital flight. How soon earlier than that will we be shooting them in their capsules over a ballistic trajectory?

Before we answer that, might I urge you gentlemen, after the answer to this question, insofar as possible, to stick to the questions about the men themselves, because they have other things to do later in the day, and while they want to be thorougly responsive, they don't want to stay here all afternoon.

Bob, would you like to answer that?

MR. GILRUTH: Walter Bonney has already quoted Dr. Glennan to say that the orbital phase might come off sometime after two years. The sub-orbital flights are a prelude to the orbital ones. We are going to get to them as soon as we can. However, as I said earlier we have all these systems to translate into hardware and to check out. Any kind of an exact estimate can't be given except it will definitely come before the orbital flight.

MR. BONNEY: John Finney?

MR. FINNEY: We have heard a lot about these men's physical capability. I wonder if General Flickinger or anybody else can give us an idea of their IQs?

MR. BONNEY: We know they are nearly physically perfect.

What about their IQs?

GENERAL FLICKINGER: That's easy, Walt. I can tell you this: Every one of the gentlemen has an IQ about 10 percent higher than any of us.

MR. BONNEY: I would say a lot higher than 10 percent.

GENERAL FLICKINGER: They are all above normal.

QUESTION: Could you give any number bracket range?

QUESTION: 120?

GENERAL FLICKINGER: Above 120.

QUESTION: Are they all above 130?

GENERAL FLICKINGER: I would say Yes, which is high; 100 percent is high.

MR. BONNEY: Let's get a lady's question.

QUESTION: Would the gentlemen mind telling us which one of the tests individually felt the hardest?

MR. BONNEY: The question is: Would the gentlemen like to say which tests they liked least? I will say next to one, because they have all agreed on one.

COLONEL GLENN: That is a real tough one, because we had some pretty good tests. I think the tests at Dr. Lovelace's place at Albuquerque, certainly some of the tests we had out there were most trying.

It is rather difficult to pick one because if you figure how many openings there are on a human body, and how far you can go into any one of them -- (Laughter) -- you answer which one would be the toughest for you.

(Laughter.)

COMMANDER SCHIRRA: I think that goes for all of us.

COLONEL GLENN: That was the toughest one for me.

QUESTION: I don't know which it was yet.

CAPTAIN COOPER: I think it would be very difficult to pick any one. I think he answered it very well.

LIEUTENANT CARPENTER: There are many different types. I believe that the ones that involved extended effort, like the treadmill and bicycle, were certainly the most fatigueing.

CAPTAIN SLAYTON: The one I had most difficulty with was swallowing the rubber tube into my stomach for gastric analysis.

COMMANDER SHEPARD: I think John Glenn answered the question pretty well. Perhaps to carry it a little bit further -- (laughter) -- the tests at the Lovelace Clinic, and also those at Dayton, actually complemented each other. Almost every test they devised was strenuous in one way or another at that particular time because they were administered separately.

COMMANDER SCHIRRA: I have nothing to add to the tests. I think the stresses were covered well by John Glenn.

CAPTAIN GRISSOM: They were covered quite well. To me I think this is the worst, here.

QUESTION: Could we have the present home addresses of these men?

MR. BONNEY: Could we get the present home addresses of the gentlemen? We will start with Mr. Carpenter.

LIEUTENANT CARPENTER: 11911 Timmy Lane, Garden Grove, California.

MR. BONNEY: I think if you read them carefully you will find them in the biographical sketch.

Let's go through them.

CAPTAIN COOPER: We are in the process of moving right now. My address today is Edwards Air Force Base. Shortly after this it will be Langley.

COLONEL GLENN: It was originally New Concord, Ohio. Right now it is 3683 North Harrison Street, Arlington, Virginia.

CAPTAIN GRISSOM: Presently my home is 280 Green Valley Drive, Enon, Ohio.

COMMANDER SCHIRRA: I am presently stationed at the Naval Test Air Center, Patuxent, Maryland. I am presently quartered there on the base at the Test Center.

COMMANDER SHEPARD: My family and I presently reside at 109 Brandon Road, Virginia Beach, Virginia.

CAPTAIN SLAYTON: I am at Edwards Air Force Base, California, 1201 Community Road.

QUESTION: This is a sort of a double question.

MR. BONNEY: Can you make it one and come back?

QUESTION: I am curious in the sense of the Astronauts, did they ever entertain an idea scientifically before they went flying, and while they were flying did they ever say to themselves that they themselves would like some day to make the first flight into space?

I know that is a difficult question to answer, but can you give me an answer to that? Did you ever entertain any ideas before you even went into flying, and while you were flying?

MR. BONNEY: The question is: Did these gentlemen ever think about flying into space before the announcement of Project Mercury was made?

Is this basically the question?

QUESTION: Yes.

MR. BONNEY: Would you mind starting it?

CAPTAIN SLAYTON: Yes, I did.

I have been at the Flight Test Center for the last four years. We have numerous writers out there off and on interviewing X-15 pilots and so on. The last time Martin Cage was out there about three or four months ago. He asked me this same question, whether I would like to be the first man in space. This was before I ever heard of the Project Mercury, of course. I told him at that time that I would give my left arm to be the first man in space.

COMMANDER SHEPARD: In answer to the question, in my particular case the answer was definitely Yes. I have followed the developments as closely as I can from my present duty, outside of the program. I think that all of us here, being technically minded, having had flight test experience, have thought about it. There isn't any question but what we have all thought about space flight.

I think that I was enthusiastic about the program from the start, and I enthusiastically volunteered. I had no difficulty in making my decision at no time whatsoever, once they asked me to participate in the program.

QUESTION: How about before?

COMMANDER SHEPARD: Yes, I had been following it before.

QUESTION: Had you any inclinations of being thrown into space?

COMMANDER SHEPARD: I misunderstood you. I did, very definitely. All of us have been in programs similar to this.

COMMANDER SCHIRRA: I think I can answer that simply by saying that all of us in this room have probably read of the Buck Rogers, Flash Gordon, Jules Verne routine. We were interested in reading these things and obviously we had intentions of following something like this in our lifetimes.

I will readily admit that I didn't think of this. But in flying aircraft we have been striving to get higher and higher. We have heard about airplanes such as the Lockheed-104 and Navy Grumman F-11-F that have gone to quite high altitudes.

Space, to any one of us, really begins at about 22,000 to 25,000. At 22,000 to 25,000 feet we can't live without survival equipment. So we really are in space. We have been flying in space as far as our environment goes for many years. As far as going higher, that is just one more step.

CAPTAIN GRISSOM: I am just going to say Yes, and for a long time.

COLONEL GLENN: I have been much interested for a long time, too. I think a specific example, in direct answer to your question, of where I really felt this desire or this inclination to get into space flights, we did considerable work or some work when I was back at the Test Center at Patuxent, the Naval Test Center, on zoom flight work where you get all the speed you can and try to optimize the flight path to get the maximum altitude out of the airplane on a climb. I don't think I ever made a zoom climb where I didn't have the feeling: If I just had the power to "loop" this thing on a little bit!

To give you a specific answer, on a period like that I really felt I would like to go on out. I have been interested in it for a long time.

CAPTAIN COOPER: Yes, I am, too. I have entertained thoughts for some years of the possibility of space flight.

LIEUTENANT CARPENTER: The answer is Yes.

MR. BONNEY: Ladies and gentlemen, the hour is drawing long. If it is all right with you, from here on out, we won't ask all seven each to answer the question. I think it is becoming pretty apparent that they already are thinking and acting like a team, and as a group rather than as individuals.

We don't want to short-change any of you. We want to answer all the questions you have, but we do want to make it fairly rapid.

QUESTION: I would like to direct a question to Colonel Glenn.

On your 1957 transcontinental flight do I understand correctly that it was the first supersonic transcontinental flight?

MR. BONNEY: The question to Colonel Glenn is, was his transcontinental flight the first supersonic transcontinental flight?

COLONEL GLENN: That is right, yes. We averaged supersonic speed for the flight level we were flying at for the whole trip, including refueling and everything. Total elapsed time for the whole trip; that is correct.

QUESTION: How long a period will they be in the air on their flight?

MR. BONNEY: How long a period will they be in the air or in space during the first orbital flight?

As I understand it, it will be two to three orbits, and it will be about 90 minutes for each orbit. So two or three times 90 minutes.

Ed?

QUESTION: These men were selected from some thirty-two others by a series of psychological tests also. Weren't they given psychological tests?

MR. BONNEY: Ask the question and then we will get it answered one way or another.

QUESTION: I was wondering what they were looking for, what kind of a man they were looking for, and how these men were picked from the others?

MR. BONNEY: The question is, in addition to the physical tests, there were psychological tests. What were the doctors and psychiatrists looking for in this area?

Randy or Don, do you want to answer that?

GENERAL FLICKINGER: I will try. Maybe it would be easier to do it this way: There were, you might say, three teams of us and, as was mentioned earlier, we all operated from numbers right up until the final getting together. These three teams were first of all, you might say, the educational, engineering, professional background. This was the function of the task force group under Bob Gilruth and some of the staff members here at NASA. Then there was the clinical group under Dr. Lovelace, and Captain Barr and staff, and they operated more or less within the confines of clinical evaluation. Then there was our group at the Aeromed Laboratory on the multiple-stress tests.

Contained in the initial screening, of course, were some arbitrary criteria that had to do with their educational background, their height, and age. The height was governed largely by the dimensions within the capsule. There were certain preliminary, I would say, psychological or intelligence screening tests, and certain medical history background that was developed at the initial screening level, prior to the selection of the initial group to start through the actual clinical and stress phases.

Have I answered your question?

QUESTION: You have a list of tests, the perception test, double mathematical reasoning test, et cetera.

GENERAL FLICKINGER: Let me also try to give you this picture. We attempted to establish valid criteria in all of these areas. All of the services have had experience in, you might say, picking premium individuals for unconventional tasks. Whether it be flying research aircraft or Navy frogmen or submariners or special tasks of the Army.

So we took those tests that had had certain degrees of proven validity from our experience, and then we added to those some additional, you might say, experimental tests. Some of those psychological and some stress tests were under that category.

It would be difficult to tell you at this particular moment just exactly which of the tests were utilized in the final selection and how much weight was given to each one.

MR. BONNEY: Peter?

Is this the last page? Don't know!

QUESTION: I think it was General Flickinger, but it might have been one of the others, who said between now and when they are ready to go these gentlemen will have some time for indoctrination. It came right after a smoking question. Is it correct to interpret the answer to mean that the smokers will have to learn to give up smoking, and also, without putting anybody on the spot, how much liquor consumption is there?

MR. BONNEY: The question is for clarification of an earlier one. The question earlier was: What about smoking? Dr. Lovelace, I believe, answered that there would be time for a period of indoctrination. You could have read into it an implication that someone would have to learn to do without it. Peter Hackett asked, will they or won't they, and regardless of what that answer is, can they take a drink?

DR. LOVELACE: I didn't mean that they would have to give up smoking. They are still mighty good friends of mine, I hope. Certainly it would be perfectly all right if they so desired, to take a drink, too.

MR. BONNEY: Question?

QUESTION: Which of the men comes closest to the five feet, eleven inches ceiling on height?

MR. BONNEY: I think you will find again in the biographies that the heights are given.

QUESTION: I would like to ask General Flickinger, how did you eliminate the men who had unsympathetic wives?

GENERAL FLICKINGER: I am sorry; I didn't hear that.

MR. BONNEY: The question is: How did we eliminate the men with unsympathetic wives?

The answer to that I can give. It is that they didn't volunteer.

(Thereupon, at 3:25 p.m., the conference was concluded.)

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C. 4/13/59

Hold for Release Until
Launched

No. 1
EX 3-3260

VANGUARD SATELLITE LAUNCHING VEHICLE 5

Satellite Launching Vehicle 5 is approximately 72 feet long and 45 inches in diameter at its base. It is finless, or integral tank construction and has a gross take-off weight (with propellants) of 22,600 pounds.

The Martin Company is prime contractor for the vehicle.

The liquid propellant first stage has a gimballed engine built by General Electric Company. In essence this stage is a guided booster. Its propellants are liquid oxygen and kerosene.

The second stage also is a liquid propellant rocket, employing white fuming nitric acid and unsymmetrical dimethylhydrazine. Its gimballed engine and fuel tanks are provided by Aerojet-General Corporation.

The second stage contains the "brains" of the entire launching vehicle -- the complete guidance and control system used during three periods of flight: (a) first stage powered flight, (b) second stage powered flight, and (c) second stage coasting flight. The second stage houses within its nose the third stage rocket and the satellite. The protective nose cone breaks away during second stage powered flight.

The mechanism for "spinning" the third stage is contained in the second stage. At the completion of the second stage coasting flight the rocket should be at a proper angle or "attitude" to discharge the third stage into an orbital path. Minneapolis-Honeywell Regulator Company, Air Associates, Designers for Industry, and the Martin Company provide the guidance and control system for the second stage.

The third stage is a solid propellant rocket. It consists of a cylindrical case, a nozzle, propellant charge and igniter, and is without steering controls. Grand Central Rocket Company made the third stage engine in Vanguard SLV 5.

The first stage burns for 144 seconds. Second stage ignition occurs within a split second of first-stage separation. During second stage burning time, the plastic nose cone protecting the payload pops off at plus 172 seconds. Second stage burns out at plus 261 seconds. Then comes a 280-second coasting period. During the coasting period, third stage spin-up starts at 527.5 seconds. The third stage ignites at 541.5 seconds and burns out at 571.5 seconds. Then follows a 200-second coasting period before the payload separates at 772 seconds.

Varian Associates of Palo Alto, California, devised the magnetometer used in Vanguard IIIA. For this experiment, it was built to specifications furnished by NASA Vanguard Division, which built the electronics and the IIIA vehicle. The IIIB air-density sphere was devised and built by NASA Space Vehicle Division at Langley Research Center.

4/13/59

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

4/13/59

No. 4

EXPERIMENTS

With the firing of Vanguard Satellite Launching Vehicle 5, the United States will attempt to put into orbit two independent earth satellites.

One satellite would be called Vanguard IIIA, a fiberglass vehicle which looks like a lollipop - a 17½-by-2½-inch cylinder protruding from a 13-inch sphere. It contains a magnetometer to measure the earth's magnetic field. Vanguard IIIA instruments and the vehicle weigh 22.6 pounds.

The other satellite, Vanguard IIIB, is a 30-inch inflatable sphere made of plastic and aluminum foil. Vanguard IIIB, which weighs only .44 of a pound, will be used to measure drag in space.

Existence of the earth's magnetic field was first postulated by the German mathematician, Gauss. Scientists now know that there is something like a bar magnet running through the center of the earth -- at an angle of 11 degrees from the earth's axis. This creates a magnetic umbrella-like field around the earth.

The field, used for years in navigation, mineral exploration and ubmarine detection, undergoes constant changes. Some of the variations, nowever, are not predictable daily events. Unaccountable disturbances, called magnetic storms, throw tools relying on the magnetic field out of kelter.

What causes these storms? Are they predictable? Can we compensate for them? These are a few of the questions prompting the Vanguard IIIA experiment.

Some theorists say that solar gas and other particles approaching the earth from outer space are sorted according to mass and energy and are guided by the magnetic field. Part of this influx builds up in pockets of high radiation. In deep space flights, man will want to avoid these high radiation zones. Space charts -- drawn from data furnished by this and future magnetometer satellites -- probably will be man's space road map.

Firings of rocket-borne magnetometers proved the existence of electric currents in the ionosphere. But these readings were all too brief to lead to any all-encompassing scientific conclusions. Day to day readings from varying altitudes, obviously, is a job for a magnetometer satellite.

Here is how Vanguard IIIA will work:

The magnetometer consists of a copper coil immersed in liquid (hexane) in a plastic can located in the nose of the 17½-inch cylinder. Wires connect the coil to the electronics and batteries of the satellite in the 13-inch sphere. On command from a ground station, a relay closes which sends $6\frac{1}{2}$ amperes of current to the coil for about two seconds.

Energizing the coil orients the positive charges of electricity (protons) in the liquid and sets them spinning within the coil in a prescribed manner. It's something like a top sergeant ordering his squad to fall in and march in cadence.

After about two seconds, the flow of current stops. Then -- for the next two to two and a half seconds -- the protons spin in a wobbling orbit inside the coil as dictated by the earth's magnetic field. The frequency of their movement imparts voltage to the coil. This cyclic voltage then is amplified and transmitted instantaneously to a ground receiver where it is taped. Simultaneously a ground magnetometer reading is made.

Analyzing these two signals should tell us much about the earth's magnetic field.

The length of the command signal and the telemetered data will vary according to altitude, battery voltage and satellite temperature, which may vary from -10 degrees C. to +50 degrees C. The silver-zinc batteries aboard should last at least three months. The satellite will be interrogated about 50 times a day. Vanguard IIIA design and material (fiberglass and resins) will rule out metalic interference with the sensitive coil. For the same reason, the coil was placed in the cylinder nose a foot and a half from the electronics package.

During second stage burning time, a plastic shroud covering the payload will pop off. The satellite's four antennae, folded upward inside the shroud, will spring down into place and lock.

Thickness of the cylinder walls averages about 1/16th of an inch; the skin of the 13-inch sphere is about 40 thousandths of an inch. The cylinder will precede the sphere in flight under optimum conditions. It is difficult to speculate on the precise attitude of the vehicle in flight but some wobbling (precession) and even tumbling would not interfere with the experiment.

Vanguard IIIA will be tracked by 12 NASA minitrack stations. They are located at Blossom Point, Maryland; Fort Stewart, Georgia; Havanna, Cuba; Santiago, Chile; Antafagasta, Chile; Lima, Peru; Quito, Ecuador; Grand Turk Isle, Bahamas; San Diego, California; Esselen Park, South Africa, and Woomera, Australia. All but the South African and Grand Turk stations will interrogate the satellite.

Vanguard IIIA's tracking signal will be a steady one on 108.00 megacycles. The satellite will be interrogated on 108.03 megacycles.

Vanguard IIIB, conceived and built by NASA's Space Vehicle Group, is a 30-inch inflatable sphere made of aluminum foil and plastic. Its skin is slightly <u>less than a thousandth</u> of an inch thick.

The bag itself weighs only .3 of a pound. Permanently attached to it is a stainless steel bottle -- about two inches long -- containing nitrogen. Their combined weight is .44 of a pound.

Without a doubt, Vanguard IIIB will be the most economical satellite ever attempted. The aluminum foil and plastic that form the skin cost only 65 cents.

Vanguard IIIB will ride sandwiched between the third rocket stage and the magnetometer vehicle.

The satellite separation device rides on top of the third stage in a four-inch-long nozzle. The nozzle runs through a fiberglass dish containing the deflated 30-inch sphere and couples to the base of the magnetometer satellite. Separation occurs when the coupling is retracted and a spring inside the nozzle pushes away the magnetometer satellite.

Immediately the compressed nitrogen in the Vanguard IIIB bottle rushes into the sphere. After expanding the sphere, the nitrogen seeps out through a small hole at the top of sphere.

Once expanded, the sphere stays expanded because there is no air pressure pushing in on it. The nitrogen is allowed to escape because should the sphere be punctured by a micrometeorite, it might burn up.

Vanguard IIIB will carry no instrumentation. It is an instrument itself. Because of the sphere's lightness in relation to its size, the sphere will be extremely drag-sensitive. The gases and particles it encounters will slowly pull it into the earth's atmosphere.

Thus its orbit will become smaller and smaller until it burns up on re-entry.

About 50 Project Moonwatch teams around the world will track Vanguard IIIB optically with binoculars and telescopes. Twelve astronomical camera stations will record its path. Tracking cameras are at Organ Pass, New Mexico; Olifantsfontein, South Africa; Woomera, Australia; Cadiz, Spain; Tokyo, Japan; Nani-tal, India; Arequipa, Peru; Shiraz, Iran; Curacao, N.W.I.; Hobe Sound, Florida; Villa Dolores, Argentina, and Haleakala, Hawaii. Optical tracking will be supervised by the Smithsonian Astrophysical Observatory, Cambridge, Massachusetts, under a contract with NASA.

4/13/59

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

April 13, 1959
No. 59-114

MEMORANDUM FOR THE PRESS:

Many queries have been received from all news media regarding the MERCURY ASTRONAUTS since announcement of their names during the NASA Washington press conference Thursday, April 9.

These men have been undergoing intensive testing and examination for the past several weeks. They were made available for all types of pictures, recordings, interviews, questioning, etc., during the extended meeting with the press.

Now each of the members of the Astronaut Team is enroute to his home. Because of the urgency of the program we have asked them to clear their personal affairs as soon as possible and to report to the NASA Space Task Group at the Space Flight Activity, Langley Field, Virginia, to begin training.

As soon as they arrive at Langley they will begin PROJECT MERCURY orbital flight training. Each will have an important role in engineering and scientific development of the space vehicle, sub-orbital buildup missions, and finally, manned satellite flight. The training program will be conducted on an extremely tight schedule.

For these reasons, the Astronauts will not be available for special interviews or other public activities for the time being.

NASA will report progress in PROJECT MERCURY as it occurs, and as the training and work program of the Astronauts permits we will arrange for special public activities in the future.

We know that we have your understanding and cooperation in this activity.

-END-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D.C.

FOR RELEASE: 1 P.M.
Thursday, April 16, 1959

Address by T. Keith Glennan

Administrator

National Aeronautics and Space Administration

to the National Petroleum Association

Cleveland, Ohio, April 16, 1959

Let me start this talk, gentlemen, with an admission. I am not an expert on fuels and propulsion. Although trained as an electrical engineer, I have spent very little time on strictly engineering tasks. But, I have been associated throughout my working life with scientists and engineers and for the past twelve years have had a part in the education of young men for service in your industry and other industries important to the economy of this nation. Now I find myself attempting to provide leadership for a most competent group of people who are charged with the responsibility of carrying forward the nation's program of basic and applied research in a new environment -- space!

When Charlie Spahr invited me to speak at this meeting, he left the choice of a subject entirely up to me. Because your business deals principally with the development and production of fuels it seemed probable that you would be interested in the propulsion problems we are having as we progress with plans for space exploration.

First, however, I would like to give you some background on the National Aeronautics and Space Administration. Our organization has been very much in the news for the past eight or nine months. In spite of this fact, I find that many people -- even well-informed people - people in businesses that do a good deal of work with the Government -- are hazy about our purpose; about our relationship to industry; to the Department of Defense, and to other Federal agencies. I am not surprised that they are, because the purposes and relationships seems rather hazy and complicated until you become familiar with them.

NASA is an independent Government agency, established by the Congress of the United States, and operating under the direction of the President. It is charged with full responsibility for space activities of a scientific and technological nature leading to the enrichment of man's knowledge in various fields, and toward the application of that knowledge for the more complete development of our society -- indeed, for the benefit of humanity as a whole.

These are not just lofty words, with little relevancy to our work-a-day world. They reflect a vision and assign a purpose. In simplest terms the purpose is to explore the vast unknown and to find ways to use for mankind's enrichment the benefits which have always followed man's ventures into the unknown. The vision is one of man's dominion over all he surveys, of the ultimate full utilization of all of God's marvelous creation. It would profit neither you nor me to indulge in speculative day-dreaming about what may lie 5, 10 or 20 years ahead as man's capability to explore and use the universe increases. But it is important that we as a people believe in the inherent rightness of our purpose and our goals. It is important that we act on that behalf.

Full realization of the fact that we are embarking seriously on a new venture of great difficulty and of immense importance to mankind is not yet widespread. The aura of stunt-making and an unreal Buck Rogers atmosphere tend to cloud and confuse the picture. For what we are doing and will do will be a logically and seriously laid on step-by-step advance into the unknown.

I was particularly pleased at the manner in which this realization seemed to come home to the press when we introduced the seven astronauts now going into training for manned space flight. One commentator referred to this as the "disillusionment" of America's youth. For, introduced to the public, were seven mature men, thoroughly and completely married, family men, all, serious, studious and highly trained; each was a technologist in his own right. There was not a dare devil-jet jockey - Buck Rogers type in the group. They were men of vision but with a practical hard headed approach to the difficult job ahead. This then typifies our purpose and the way we shall approach it.

But I must return to the National Aeronautics and Space Act of 1958 which charts our course in this endeavor. The Act declares it to be "the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind." The Act says further that these activities are to be conducted by a civilian agency, which is NASA. But it makes an important exception to that broad charter. The Act provides that activities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States (including pertinent research and development) shall be directed by the Department of Defense. Obviously, space vehicles and the techniques which are used to gather information about the cosmos are suitable both for peaceful scientific exploration and for military systems of various kinds -- just as aircraft may be used either for civilian air transportation or for military purposes.

The Act calls for close cooperation between the two agencies, both to avoid needless duplication of facilities and of research and to insure the fullest interchange of information. Formal mechanisms are set up for this purpose in the Space Council, whose chairman is the President, and in the Civilian-Military Liaison Committee. In addition, special committees in both the Senate and the House of Representatives keep a close watch on the programs of NASA and DOD. More important even than these formal channels in insuring our collaboration with Defense are the day-to-day contacts which we maintain at both the working and supervisory levels.

How have we gotten a program underway in the short six months since we attained operating status as an agency? The Space Act provided for the absorption by NASA of the personnel and facilities of the National Advisory Committee for Aeronautics. These included some 8,000 scientists, engineers and supporting people, along with the great research centers at Langley Field, Virginia; at Moffett Field, California; and here in Cleveland, Ohio. Smaller activities -- though highly important ones -- which we inherited from the NACA, are the High-Speed Flight Station at Edwards Air Force Base, California, and the rocket launching facility at Wallops Island, Virginia.

On the 1st of October, last year, we opened up for business officially, absorbed the NACA, and accepted transfer of the Vanguard Project from the Naval Research Laboratory. By the end of November, more than 160 able scientists from that Laboratory had moved to NASA. Among them were most of the Vanguard specialists as well as some highly accomplished men conducting upper atmosphere research.

On December 3rd, the Jet Propulsion Laboratory in Pasadena, California, was transferred to NASA from the Army by a Presidential Executive Order. Operated by the California Institute of Technology under contract to NASA, JPL employs 2,300 people on a variety of projects. These include guidance and control systems, tracking, telemetry, the development of instrumented payload packages, and rocket propulsion. Thus JPL -- along with the Lewis Research Center here in Cleveland -- is among our principal laboratories for research on rocket-engine systems and propellants.

Leaving out the personnel of JPL -- which as I said is a contract operation -- NASA expects to have about 9,000 employees by the end of June 1959. Our budget for the next fiscal year contemplates an increase of slightly more than 1,000 -- mainly engineers and scientists - by June of 1960. Our present plan is to keep NASA as small as we can, consistent with our ability to manage our programs in a purposeful and efficient manner. This means that a large part of our research and development will be carried out under agreements with other Government agencies, with scientific institutions, universities, and in a very substantial measure, with private industry.

This policy represents a definite departure from the practice followed in the past by the NACA. Our predecessor organization last year had a research and development program amounting to about $100,000,000. It had as its mission the development of an understanding of the technology of flight sufficient to satisfy the military and civilian needs for new information required in the design of vehicles capable of faster, higher and safer flight. In this role, NACA was the major contributor of new knowledge. Scarcely an aircraft or missile is in use today which does not owe its existence to the important contributions of this fine organization. Virtually all of this effort was carried out in NACA's own laboratories.

The new organization -- NASA -- is charged with these same research responsibilities in the new field of exploration in space as well as in aeronautics. We will continue to strive to meet our responsibility to assure America's leadership in the underlying technology of both areas - space and aeronautics. As in the past, the basic information our scientists and engineers add to our store of knowledge will have application in both civilian and military operations. Building on this technological base, the NASA will erect R&D programs to explore and exploit the space environment and DOD can erect R&D programs to create weapons and defense systems. We must never forget that peace is a goal which must be pursued diligently and with vigor. Space is an environment which can be used to threaten and endanger the free world. For this reason we must assure that we are able to meet this threat in space or in any other quarter. Nearly every technology has found both military and civilian application. We must not permit a passion for organizational neatness to obscure the fact that, in an area where the technology by its very nature must be funded by the government, provision must be made to exploit both military and civilian applications. This is at one and the same time an explanation of the difficulty and the importance of making the relationships between NASA and DOD work effectively.

In contrast with the $100,000,000 annual budget of the NACA, our new organization has a 1959 budget of $385,000,000 to carry out its responsibilities in the search for new knowledge and the application of that knowledge in aeronautics and in the non-military exploitation of the space environment. It is the latter function which occasions the bulk of the increased budget and which sets the character of NASA as an important new agency in this age of swiftly advancing technology. Some $250,000,000 of our fiscal '59 budget of $385,000,000 has been earmarked for contracts outside our own agency.

The President's proposed budget for Fiscal Year 1960 asks that $485,300,000 be granted to NASA. Of this amount, about $350,000,000 is intended for work to be performed by others. Again this means principally industry.

Here let me interject a few words about our procurement policies for those who might contemplate the possibility of doing business with NASA. These policies are founded, in the main, on the Armed Services Procurement Regulations. But there are some differences between our over-all procurement program and those of the Armed Forces. One of the most significant at this time is that it is extremely doubtful that we will follow up our research and development contracts by entering into agreements for large-scale production. Each experiment that we conduct in space is characterized by a high degree of individual design and assembly. Even in a series of projects having the same general purpose--such as the Pioneer space probes or the Explorer and Vanguard satellites -- the payload packages vary according to the data to be collected. Vehicle components vary with the nature and size of the payload. Putting it simply, ours is a research and development operation. Seldom, if ever, will any two of our flights be absolutely identical.

In another important respect, the contractual authority of NASA differs markedly from that of the Defense Department.

This divergence is in the field of patent rights. The National Aeronautics and Space Act specifically requires that when inventions grow out of work performed for NASA under contract, we must acquire title to them for the Government. As you know, this is quite a different procedure from the one followed by the Department of Defense. Operating under no such legal constraints, the Armed Forces normally confine their property interest in inventions to a royalty-free license.

Two such contrary patent policies, followed by Government agencies working in closely-related fields of research and development, can be detrimental to the kind of cooperation that we must have from industry, if our joint effort is to go forward with effectiveness and dispatch. We are well aware of the attitude of industry toward this question.

On the other hand, it must be recognized that these rules are written into the law, and we cannot ignore them. The Administrator of NASA has authority to waive these patent rights, but only if his judgement tells him that such an action is clearly in the public interest. As an interim measure, we published recently in the Federal Register a statement of conditions under which requests for waiver of the patent clauses might be considered. NASA will hold public hearings on this matter of waivers in the middle of May.

In due course, I feel sure that the Congress will want to review the whole subject of our patent requirements. Meanwhile, we are going to make every effort to administer the legal provisions in the patent field fairly and objectively, and with due regard for the interests of both Government and industry.

Contracting with industry on a multi-million-dollar scale requires us to seek the highest quality of American scientific and industrial skill, as well as the best capabilities of Government laboratories. We must draw on these outside sources, if we are to develop and produce the tools needed to establish our leadership in space exploration.

Speaking of "leadership" in space research, I suppose the question most frequently asked of me is -- "Where do we stand in comparison with the Soviet Union in the business of space research and exploration?" The only realistic answer to this question, based on the information available to us from Soviet publications and from our own observations, is that in the single field of rocket propulsion, their developments and capabilities for placing heavy payloads in orbit rather precisely and on deep space trajectories exceed ours by a substantial margin at the present time. This situation arises from the fact that they began serious work in the ballistic missile field six or eight years earlier than we did. The lack of availability of space propulsion vehicles of high thrust capability is limiting our ability to get on with second generation experiments at the present time. But with respect to the acquisition, of data obtained from sensors in our small but highly instrumented payload packages, and the analysis and interpretation of that data, it seems clear that we have done as well as the Soviet scientists -- indeed, in some areas, somewhat better.

To return to my story, our program for the next few years is solidly set, subject only to the provision of necessary funds by the Congress. Beyond that period our planning takes us into the preliminary stages of orbiting laboratories, lunar landings (both unmanned and manned), the development of systems components for a meteorological and weather forecasting service, the development of a prototype of a global communications system and many other equally exciting activities. To accomplish these programs and plans we must develop improved tracking and data acquisition techniques and equipment and must install additional stations around the world; we must develop guidance and control systems of greater accuracy and reliability than those presently available to us; we must recognize and prepare for increasing demands to be made on the ingenuity of our scientists and engineers in the development of more complex, more sophisticated and more expensive payloads as our experimental program progresses; we must develop an understanding of the environment and the physiological and psychological stresses to be experienced by man as he is placed in orbit around the earth. As we run down this list, you may note that I have left until last the development of a family of rocket propulsion systems -- booster and upper stage rockets -- without which the program cannot progress very far.

Today, unfortunately, the rate at which we are able to progress in space exploration is very much handicapped by our lack of adequate payload capacity. Let me cite a specific example to illustrate this situation. A few weeks ago, at Cape Canaveral, NASA and its associates - the Army Ballistic Missile Agency and the Jet Propulsion Laboratory - together launched a deep-space probe called Pioneer IV. Launched toward the moon, we had the satisfaction of following this vehicle with our tracking equipment to a distance of approximately 406,000 miles from the center of the Earth. The probe passed within 37,000 miles of the moon and flew on into a permanent orbit around the Sun.

The payload in this probe weighed only 13.4 pounds. Thus we find that the ratio of weight of the launching vehicle to the payload was just a fraction more than 10,000 to 1. Even when we begin to use launching systems of the Atlas intercontinental ballistic missile class -- as we expect to do before long in Project Mercury -- our manned space project -- the ratio of weight of launching vehicle to payload will be about 1,000 to 1.

In order eventually to send really substantial payloads into space at a reasonable cost for vehicles and propellants, we will have to reduce that ratio to about 200 to 1 in the case of interplanetary flights, and possibly to as little as 50 to 1 for satellites.

There are two principal ways in which the ratio of launching weight to payload can be reduced. One is by building bigger and better proportioned space vehicles, with more powerful booster engines. The other is to increase the amount of energy converted into thrust by using more efficient rocket fuels and oxidizers. NASA is working in both of these directions.

In an attempt to deal with the first of these approaches, shortly after we became operative last October, we set in motion a project calling for the design and production of a new single-chamber rocket-booster engine that will provide initially 1,000,000 pounds of thrust and will be capable of further development to yield 1,500,000 pounds of thrust. This engine, delivering about three to four times the power of any ballistic missile we now have, should be ready for use within four years.

With such an engine powering our base or booster rocket, and with the use of proportionally designed upper stages, we will be able to propel a payload weighing more than 18 tons into a satellite orbit. Or we can land as much as two tons on the Moon, intact. Furthermore, by arranging four of these engines in a cluster, we can raise our orbital payload to 75 tons, or place up to 8 tons in a soft landing on the Moon. Only with this magnitude of thrust can we attempt to land a man on the Moon and return him to the Earth. Only with rocket vehicles of this order of magnitude, as we see it now, will we be fully in the business of space exploration.

As an intermediate approach to the solution of the need for these enormous thrust levels, the Army Ballistic Missile Agency is clustering eight Redstone and Jupiter IRBM type units to provide a nominal thrust of 1,200,000 pounds. Utilizing proven hardware, this unit should be operational two or more years before the single chamber engine will be available.

An even more immediate step is being taken to provide significantly greater payload capability while we await the delivery of these monster units. Only three weeks ago, NASA announced the signing of a contract for the engine which will power the second stage of a vehicle to be known as Vega. Utilizing a modified Vanguard first stage positioned on top of the Atlas ICBM as a base booster rocket, this new unit will enable us to place about 3 tons in orbit. The unit should be available in the summer of 1960 - about 15 months from now.

As the next step in developing this family of space propulsion systems, we expect to replace that Vanguard-derived second stage I just mentioned with the first rocket specifically designed to burn a super-high energy fuel. Again using the Atlas as the base booster, this system utilizing a second stage with a fuel-oxidant combination of hydrogen and oxygen will be called the Centaur. This vehicle should be available in slightly more than two years. It will permit the orbiting of more than 8,000 pounds at a nominal distance of 300 miles above the surface of the earth. Both of these units - the Vega and the Centaur - will be used for deep space probes by adding to them a third stage, now under development by our Jet Propulsion Laboratory on the West Coast. Powered by storable liquid propellants, currently hydrazine and nitrogen tetroxide, this rocket should provide 6,000 pounds of thrust. We should be able to send one ton to the neighborhood of the Moon with the three stage Vega configuration and almost two tons with the Centaur.

Except for the Centaur second stage, all of these rocket vehicles will depend on present-day propellants for their thrust. In fact, the fuel experts at NASA believe that space operations, for some time to come, will continue to rely on the use of existing hydrocarbon fuels with liquid oxygen as the oxidizer. They feel that this is likely to be the case particularly with the base boosters, the big primary stages that get our vehicles off the ground and out of the denser layers of the atmosphere.

Those of you who have seen a launching of one of these beasts will understand the problems we have in storing and handling propellants of extremely high energy. As you know, we have a good deal of trouble now with lox, the usual oxidizer for large rockets. Liquid oxygen vaporizes at about 180 degrees below zero Centigrade. To make up for the loss by evaporation at ordinary temperatures on the ground, we have to keep topping off the oxidizer in the tanks, almost up to the moment of launching.

Most of the super-energy fuels and oxidizers present this problem in an aggravated form. For example, liquid hydrogen vaporizes at minus 252.7 degrees Centigrade. In addition, it is highly explosive on contact with air. Yet it is the most efficient of all rocket fuels. Ozone, as a very-high-energy oxidizer, has drawbacks of a similar kind, although methods of handling ozone safely -- in the laboratory, at least -- have been worked out in recent years.

Another problem which must be kept in mind when we consider the uses of the so-called exotic fuels in the quantities needed to launch very large rockets is the very much higher cost of these fuels as compared with the more conventional ones now in use. For all these practical reasons, we expect to go on filling the tanks of our large base booster rockets with the propellants we now have -- those for which we have already developed handling techniques and facilities -- for a considerable period in the future.

The same situation does not apply, necessarily, to upper-stage rockets. They are smaller, and require less fuel. In the near vacuum in which they operate they produce enormous thrust per pound of fuel. And so, in the years immediately ahead, we will probably see an increasing use of super-energy propellants in our upper-stage vehicles. Only gradually, as we learn more about their properties under specific environmental conditions, and acquire the technical know-how to handle them, is there a strong possibility that they may come into general use for large rockets.

Even then, the fact that hydrocarbon fuels may in time become outmoded does not imply that the petroleum industry will cease to play a most important part in rocket development. Because of the wide experience which your people have in fuel chemistry and the handling and storage of fuels of all kinds, we forsee a continuing need -- an increasing need -- for your assistance in the development of our rocket-propulsion technology. The production of energy bearing fuels is your business. Inevitably, as you strive to help solve some of our fuel problems, important additions to basic knowledge and the technology of your more conventional operations will appear.

Gentelmen, I have tried to give you some understanding of the nature and purpose of the agency which I have the privilege to head. I hope I have given you a realistic picture of the variety of problems we face in the immediate future and of the part that your industry may play in solving some of those problems. As I conclude, I want very much to leave with you some feeling of the importance of this task we are undertaking as a nation--as the leader of the free world.

The President has said that the exploration and use of space should be devoted to the peaceful purposes of mankind. The Congress, after long deliberation, passed the National Aeronautics and Space Act of 1958 which carries as its opening statement of policy these words which I want to repeat again for you. "The Congress hereby declares that it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind." We in NASA are proud of the fact that we have the responsibility for carrying out this mandate. To us, these are not empty words which may be used to disguise activities intended for other and less constructive purposes.

In spite of charges and counter charges about the sincerity of our purposes as we participate in a variety of international cold war discussions, this nation has adhered to a policy of patient but determined negotiation directed toward the elimination of those conditions which now permit the enslavement of men and nations against their will. To make this policy fully effective we have devoted great energy, precious creative and productive manpower, and much of our material wealth to the building and maintaining of a defensive shield for ourselves and the free world. We are entitled to believe that this shield has served and continues to serve as the great deterrent to massive agression. A stalemate of uncertain stability has been achieved but the possibility of a devasting holocaust continues to cast its shadow everywhere.

In this arena, we have a new horizon toward which to direct men's minds. The language of science is truly an international language. The first significant rifts in the Iron Curtain were those involving scientific exchange -- the International Congress of Atomic Energy in 1955 and many lesser but equally significant meetings held since that time. While it is clear that space will have a part in the military strategy of nations as the years go by, its real and long term importance lies in the beneficial uses to which we put the knowledge we gain about the cosmos. The fissioning of the atom gave us the most powerful tool of destruction yet to be devised by man. But that same process of fission and its companion process, fusion, one day will become the source of energy that will lift the load from the backs of men everywhere.

As a constructive force, the carrying out of scientific exploration in space will give man the knowledge and the means whereby he may more fully understand the processes of nature. It may prove to be the means by which we can raise men's minds to the heights where human dignity is recognized everywhere as the lofty estate we hold it to be.

I can conceive of no more inspiring task than our pursuit of the unknown in space. In this spirit of high adventure, I look forward to the challenging days ahead, confident that you and your associates -- indeed, that men everywhere will help us attain the goals this nation has set for itself in the exploration of space for peaceful purposes.

- END -

NASA Release No. 59-115

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

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April 17, 1959

NASA NAMES LUNAR EXPLORATIONS WORKING GROUP

A working group has been appointed to conduct major long-range scientific explorations of the moon's surface and environment, the National Aeronautics and Space Administration announced today.

Headed by Dr. Robert Jastrow of NASA Headquarters, the group is one of a number of working units whose members will follow through on experiments and correlate projects of forthcoming satellite and space probe packages. Previously announced were working groups on satellite beacons and orbiting astronomical observatories. (Refer to NASA Release No. 59-108, April 1, 1959).

Accepting membership with Dr. Jastrow on the lunar explorations group were Dr. Harrison Brown and Dr. Frank Press of the California Institute of Technology, Pasadena; Dr. Maurice Ewing of Columbia University, New York City; Dr. Bruno Rossi of the Massachusetts Institute of Technology, Cambridge; Dr. Herbert Friedman of the Naval Research Laboratory, Washington; Dr. A. R. Hibbs of the NASA Jet Propulsion Laboratory, Pasadena; Dr. James Heppner of the NASA Space Science Center, Beltsville, Maryland, and Dr. Herman LaGow of NASA Headquarters.

Dr. Homer E. Newell Jr., assistant director of the NASA for space sciences, said the group will correlate experiments in these general areas:

1. Probes and orbiters: payload packages designed to obtain information on the lunar environment. (i.e., extent of the lunar

atmosphere, magnetic fields, interplanetary plasma, fluxes of energetic particles and beta and gamma rays emanating from the moon's surface.)

2. Advanced orbiters: satellites circling the moon and instrumented to give data on the shape and mass of the moon and structure of the lunar surface.

3. Hard landings: instrumented packages containing devices such as seismographs and magnetometers to measure properties of the lunar surface. The payload will be packaged to survive impact on the moon.

4. Soft landings: payload packages containing more delicate instruments such as X-rays and television cameras. Retrograde, or reverse, rockets will be used as brakes in the soft lunar landing.

Firing schedules and payload details are still under study.

A number of institutions have proposed experiments in the lunar exploration series. Among them are the Army Ballistic Missile Agency, Applied Research Laboratory of Glendale, California, Cal Tech, Columbia University, Los Alamos Laboratory of the Atomic Energy Commission, JPL, the Texas Instrument Company, University of California, MIT, University of Chicago and the NASA Beltsville Space Science Center.

- END -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

NASA RELEASE NO. 59-117
EX 3-3260
Ext. 6327

FOR RELEASE:
Monday AM's
April 20, 1959

NASA LISTS OVER $10 MILLION IN CONTRACTS

NASA last month obligated more than $10 million for a wide range of space work, including new high-energy rockets, television cameras and manned space flight.

Contracts went to:

U.S. Army Signal Corps -- $540,000 -- For infra-red radiation and heat-balance experiment in Project Tiros, a meteorological satellite. The satellite also will have two television cameras to take pictures of the earth's cloud cover. It will weigh more than 250 pounds and launching is about a year away.

General Electric Co.--$4,120,000--For second stage, liquid-propelled rocket engine to be mounted on an Atlas as Project Vega, capable of putting more than a two-ton payload in orbit.

NASA Jet Propulsion Laboratory -- $3 million -- For Vega integration, payloads and technical project supervision.

Bell Aircraft Corp. -- $1,070,000 -- Feasibility of a high-energy fluorine-liquid hydrogen rocket engine, including studies and hardware.

U.S. Army Ordnance and Cooper Development Co. -- $20,000 -- For 10 two-stage Nike-ASP sounding rockets that would send 50-pound payloads to about 150 miles altitude.

Army Ordnance Missile Command -- $100,000 -- To reimburse AOMC for special technical studies and activities.

U.S. Naval Ordnance Test Station (ONR)-- $100,000 -- Research and development on advanced television cameras for space vehicles.

U.S. Weather Bureau -- $150,000 -- For meteorological analysis in various experiments.

Naval Research Laboratory (ONR) -- $260,000 -- To buy test equipment for telemetry stations.

North American Aviation Co. -- $930,000 -- For destruct system and design of ground transport vehicles and launcher in Project Mercury, the manned satellite.

Herrick L. Johnson Inc. -- $50,000 -- For a 3,600-gallon liquid-hydrogen trailer to be used in support of high-energy rocket work at NASA's Lewis Research Center, Cleveland, Ohio.

Thiokol Chemical Co. -- $60,000 -- For Recruit rocket motors in high-energy work at Lewis.

Radioplane, Division of Northrop Corp. -- $60,000 -- A landing and recovery system for the Project Mercury capsule.

Electro Mechanical Research, Inc. -- $120,000 -- For furnishing two telemetering systems to build a prototype for use in Project Mercury.

Cook Electronic Co. -- $80,000-- For five 3-channel miniature airborne tape recorders for use in various projects.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

EX 3-3260
Ext. 7827

Release No. 59-118
FOR RELEASE:
11:30 a.m., Monday
April 20, 1959

RELEASED JOINTLY BY THE NASA AND THE CANADIAN DEFENSE RESEARCH BOARD

Canadian Agency to Join NASA in Ionospheric Research

The Administrator of the United States National Aeronautics and Space Administration, Dr. T. Keith Glennan, and the Chairman of the Canadian Defense Research Board, Dr. A. Hartley Zimmerman, announce acceptance by NASA of proposals by the Canadian Defense Research Telecommunications Establishment for continuing joint rocket and satellite ionospheric experiments. These will be strictly non-military projects.

The Defense Research Board (DRB) is the scientific element of the Canadian Department of National Defense, and the Defense Research Telecommunications Establishment is one of its research agencies.

The Canadian research group, which has been active in ionospheric research for many years, will proceed to adapt its instrumentation techniques to the requirements of the rocket vehicles which will be supplied by the NASA. They will also design equipment for use at Fort Churchill, located in the southwest corner of Hudson Bay in the Province of Manitoba, and other existing ionospheric observation stations in Canada to which rocket and satellite data will be relayed.

The use of rockets in the auroral belt and satellites in polar orbits which penetrate this belt should make substantial contributions to our knowledge of the Arctic upper atmosphere.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

NASA RELEASE NO. 59-120
EX 3-3260
Ext. 7827

FOR RELEASE:
Tuesday PM's
April 21, 1959

SCOUT STRUCTURES CONTRACT LET

NASA today awarded a $945,000 contract to Chance-Vought Aircraft, Inc. of Dallas to integrate the four-stage, solid-propelled Project Scout Vehicle.

Commonly called the "poor man's rocket" because of its relative low cost, Scout will be capable of boosting 150-pound satellites into nominal 300-mile earth orbits, or 100-pound instrument packages to 5,000 miles or more in high-altitude tests.

Under the terms of the new contract, Chance-Vought will build Scout's airframe and integrate its four all-solid rocket stages. Final assembly for flight will be done at NASA's Langley Research Center, Langley Field, Va. The Dallas firm also will build a launcher for the vehicle.

Chance-Vought's bid was selected from proposals submitted by 13 companies, mostly in the airframe industry.

Initial Scout payload tests will be in mid-1960 from NASA's Wallops Island Test Station, a Virginia island off the Eastern Shore.

Each Scout vehicle will cost about $500,000 -- substantially less than other vehicles of its payload capability. The Air Force plans to use a modified Scout in a number of high-altitude tests.

All other major contracts for the inexpensive, work-horse test vehicle have been let. They include: first stage -- a modified version of an early Polaris motor by Aerojet-General Corp.; second stage -- an improved Sergeant by Thiokol, Inc.; third stage -- a new rocket by Hercules Powder Company's Allegany Ballistics Laboratory which will be a scale-up of the Vanguard third stage; fourth stage -- also by ABL and similar to the present Vanguard third stage.

Minneapolis-Honeywell Regulator Company will provide a simplified gyro guidance system and spin stabilization for NASA experiments.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

EX 3-3260
Ext. 6328

Release No. 59-121
For Immediate Release
April 23, 1959

RICHARD E. HORNER TO BECOME ASSOCIATE ADMINISTRATOR OF NASA

President Eisenhower today announced the resignation of Richard E. Horner, Assistant Secretary of the Air Force for Research and Development. Mr. Horner is resigning to accept appointment by T. Keith Glennan as Associate Administrator of the National Aeronautics and Space Administration.

The resignation and appointment will become effective June 1, 1959. The NASA post is a new position.

Dr. Glennan, Administrator of NASA, said the Associate Administrator will be responsible for the general management of NASA's operations. Under the Administrator and Dr. Hugh L. Dryden, Deputy Administrator, he will have responsibility for the effective performance of NASA's far-flung operations, which include laboratories, research centers, rocket testing and launching facilities, and a world network of tracking stations.

Horner was appointed Acting Assistant Secretary of the Air Force for Research and Development February 28, 1956. He has held his present position since July 8, 1957.

Born October 24, 1917, in Wrenshall, Minnesota, he is a graduate of the University of Minnesota, where he received a Bachelor of Science degree in aeronautical engineering in 1940.

He holds a Master's degree from Princeton University, 1947.

In World War II he served as a pilot with tactical units in the Army Air Corps and in the Air Materiel Command. He continued on active duty with the Air Force until December, 1949. As a civilian he was first an aeronautical development engineer and later, Technical Director of the Air Force Flight Test Center, Edwards Air Force Base, California. He held that position until May 1955 when he was assigned as Deputy for Requirements under the Assistant Secretary of the Air Force for Research and Development.

He married the former Jean Margaret Hodgson of Waseca, Minnesota, in 1941. They have two children.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

NASA RELEASE NO. 59-122
Ex. 3-3260
Ext. 7827

FOR IMMEDIATE RELEASE:
April 27, 1959

FINAL ANNUAL REPORT OF NACA ISSUED

President Eisenhower today transmitted to Congress the 1958 Annual Report of the National Advisory Committee for Aeronautics. The document is the 44th and final report of the agency submitted by its chairman.

The NACA, established by Congress in 1915 to coordinate and conduct aeronautical research, was absorbed by the National Aeronautics and Space Administration under legislation enacted last year. The NASA took over facilities, property, equipment and staff of the NACA on October 1, 1958.

NACA's concluding Annual Report contains a history of the agency, written by its last two chairmen, Jerome C. Hunsaker and James H. Doolittle. Dr. Hunsaker traced the NACA history for the first 40 years; Dr. Doolittle covered the four final years.

In addition to the history, the 115-page report contains financial, personnel and publications reports plus a series of word and photo essays on various research projects.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

NASA RELEASE NO. 59-123
EX 3-3260
Ext. 7827

FOR RELEASE:
Thursday P.M.
April 30, 1959

JOHN P. HAGEN NAMED NASA'S ASSISTANT DIRECTOR FOR PROGRAM COORDINATION

John P. Hagen, former Chief of the Vanguard Division, has been appointed Assistant Director for Program Coordination of the National Aeronautics and Space Administration, T. Keith Glennan, Administrator, announced today. He brings to the headquarters staff a valuable background in space research operations, Dr. Glennan said.

In his new post, Dr. Hagen will bring a quarter century of research and development experience, including the Vanguard project, to bear on coordinating and reviewing the progress of the various scientific and technical programs in NASA's Office of Space Flight Development.

Dr. Hagen has been Chief of NASA's Vanguard Division since last October 1 when the Vanguard project he had headed at the U. S. Naval Research Laboratory was transferred to the new civilian space agency. The Vanguard staff was set up in 1955 to spearhead the Scientific Earth Satellite Program, a part of the U. S. participation in the International Geophysical Year (1957-58). The Vanguard staff will be integrated into other major projects within the NASA organization.

Born in Nova Scotia in 1908, Dr. Hagen earned a Bachelor of Arts degree at Boston University in 1929; a Master of Arts degree at Wesleyan University in 1931, and a Doctorate in Astronomy at Georgetown University in 1949.

Dr. Hagen joined the Naval Research Laboratory in 1935. For his early work in the development of radar he was awarded a Presidential Certificate of Merit. After World War II he headed NRL's Radio Physics Research Group. This group, in 1950, developed the world's most precise radio telescope used to discover absorption of hydrogen clouds in our galaxy.

Appointed Head of NRL's Atmosphere and Astrophysics Division in 1954, Dr. Hagen supervised a broad program of upper atmosphere and astrophysical research. In the fall of 1955, he was named Director of the Vanguard Earth Satellite Program.

On March 16, 1959, one day before the first anniversary of the launching of Vanguard I, Dr. Hagen was presented the Distinguished Public Service Award by the Secretary of the Navy.

Dr. Hagen is a Fellow of the Institute of Radio Engineers and the American Academy of Arts and Sciences; and a member of the American Astronomical Society, International Astronomical Union, Washington Academy of Science, International Radio Scientific Union, and Sigma Xi.

Dr. and Mrs. Hagen, the former Edith Soderling, and their two sons, J. Peter, 17, and E. Christopher, 14, live at 3001 Second Street North, Arlington, Virginia.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

NASA RELEASE NO. 59-124
EX 3-3260
Ext. 7827

FOR RELEASE:
Wednesday AM's
April 29, 1959

NASA AWARDS $24,000,000 DELTA CONTRACT

NASA today signed a $24,067,500 contract with Douglas Aircraft Company, Inc., making it prime contractor for the Delta launching vehicle.

Basically, Delta will have the same three-stage configuration as Thor-Able, used by NASA and the Air Force last year in several deep space probes. Main new features of Delta are:

1. An improved radio inertial guidance system.

2. Active guidance control of longer coasting periods between second-stage burnout and third-stage ignition. The added coast period will mean maximum velocity at higher altitudes.

NASA Administrator T. Keith Glennan called Delta "a much needed interim launching vehicle" for use in 1960 and 1961 until some of the big boosters -- capable of launching several tons of payload -- are developed. The Douglas contract calls for a dozen vehicles over the next two years.

Delta, which should be capable of putting 250 pounds in a nominal 300-mile earth orbit or sending a 100-pound payload on a deep space mission, will use a modified Thor as a first stage.

Second stage will house the guidance and be powered by a revamped Aerojet-General Corp. engine. First and second stages will be liquid-fueled while the third stage will be a solid-propellant rocket by Allegany Ballistics Laboratory of Hercules Powder Co. Delta will stand about 90 feet high, weigh over 100,000 pounds loaded and develop more than 150,000 pounds' thrust.

NASA plans for the vehicle include launching equatorial satellites from Atlantic Missile Range, Florida, polar orbit experiments from Pacific Missile Range, California, and several deep space missions.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D. C.

EX. 3-3260
Ext. 7827

Release No. 59-127
Immediate Release
April 30, 1959

JOINT WORKING GROUP FORMED ON MERCURY SEARCH AND RECOVERY

The National Aeronautics and Space Administration and the Department of Defense have set up a joint working group on search and recovery aspects of the Project Mercury manned orbital vehicle program. Co-chairmen of the group are Edmond C. Buckley, assistant NASA director for Space Flight Operations, and Rear Admiral J. W. Gannon, assistant Chief of Naval Operations (Fleet Operations).

The group was established in mid-April and has had two meetings to date.

The search and recovery phase of the Mercury project involves facilities of the Army, Navy and Air Force.

Ships of Destroyer Flotilla Four have been conducting early experimentation in the Hampton Roads, Virginia, area with a full-scale research capsule model to determine methods of bringing the vehicle on board ship after it lands.

As presently planned, the Mercury vehicle will come down in the Atlantic following its orbital mission.

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